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ABSTRACT

Intended as a resource for administrators, teachers, parents, and those responsible for curriculum development, this guide identifies the elements of a kindergarten program which provides a productive learning experience for 5-year-old children. Four main elements are highlighted as prerequisites for an effective kindergarten program. First, the program should be based upon a firm understanding of the human growth, development, and learning principles. These principles include the knowledge that a child learns as a total person (emotionally, socially, and physically, as well as intellectually). Second, kindergarten programs need to be thoroughly planned and carefully organized, with flexibility as a deliberate part of the organization. A sufficient degree of flexibility will enable the day-to-day operations to be altered to allow for special needs and interests. Third, the teacher, as the single most important part of the learning environment, should have an understanding of child development, respect for and trust in children, and a willingness to affirm children's rights as individuals. Fourth, planning a challenging and comprehensive curriculum based on young children's developmental needs should be the most important part of the process in implementing the kindergarten program. Mathematics, science, language arts, and other disciplines should become interwoven so that they can become a natural part of the child and his or her world. Finally, the evaluation of the child's progress must be a daily concern of the teacher in order that appropriate activities can be provided. Specific guidelines, learning activities, and other supplementary materials are indicated for implementation of each of the above principles. (MP)

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FOREWORD

Kindergarten is the child's first and probably most important experience in school. It is a time when children's experiences may well determine the direction of their future learning. Eagerness for learning can be either stimulated or stifled. Attitudes toward school can form in a positive or negative way. Interaction with others can become free and direct, or awkward and artificial. Future abstractions in all areas of learning can be made possible through acquisition of concrete, conceptual foundations or can be made almost impossible through the rote acquisition of abstractions at this age. A pattern for independent or dependent decision-making can be established. Creative expression can blossom or die. It is the intent of this guide to identify the elements of a kindergarten program which provides a healthy, productive learning experience for five-year-old children.

This first year of school focuses on the young child's experiences, strengths, and needs. The program for the child is based upon a firm understanding of human growth, development, and learning principles. These principles include the knowledge that a child learns as a total person (emotionally, socially, and physically, as well as intellectually).

All children grow through similar stages of intellectual development which do not necessarily coincide with chronological age. Children are curious and learn through active involvement (exploring, playing, manipulating, problem solving) as well as through using their senses: hearing, seeing, touching, tasting and smelling. Children learn through play; therefore, a sensitivity to the value of play is required. A child's attention span is directly related to his/her interest in and meaningfulness of a given activity. Therefore, provision should be made for children to learn in a non-threatening environment which allows them to make choices and decisions, to take risks, to make mistakes and try again, and to experience many successes.

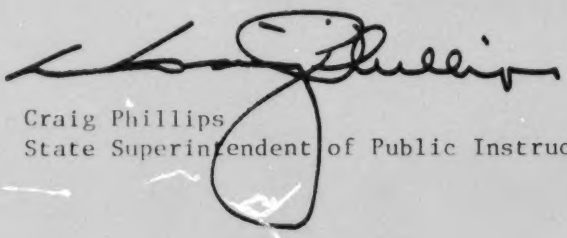
Physically, the five-year-old's large muscle system is in a stage of rapid development. Small muscle development, however, does not proceed at the same pace. Provisions should be made for furthering large muscle development through running, climbing, jumping, stretching, hopping, galloping, throwing, and catching. Care must be taken so children are not asked to sit for long periods of time concentrating on tedious pencil and paper activities.

By the time a child reaches school age, self-concept is quite well formed. However, self-concept is learned, not inherited. The child's reactions to learning and to the social-emotional climate of the classroom will be determined by the beliefs and attitudes he/she has about him/herself. There is considerable evidence to support the correlation of the child's self-concept in kindergarten to his/her degree of success in the primary grades. Social-emotional growth occurs most fully when the child is able to engage in realistic activities that give him/her competent feelings. Therefore, the kindergarten environment should be responsive to the child's developmental, as well as social-emotional needs.

Thinking, problem solving, and scientific inquiry are important aspects of a sound kindergarten program. Adult expectations in these areas are tempered by an awareness of young, growing minds and bodies. Children do not think like adults, act like adults, or perceive the world as adults. They lack experience to move and function in adult terms. In order to provide adequate and meaningful experiences for continuous growth, one must see the world through the eyes of a child.

It is the teacher's responsibility to create the environment and provide the activities appropriate for young children. These include physical activities, socio-emotional experiences, and stimulating intellectual pursuits.

The learning environment should reflect this understanding of the nature of children. The several disciplines (mathematics, science, language arts, etc.) should become interwoven so that they can become a natural and practical part of the child and his/her world. In these times of ever-increasing knowledge of our world, we must not forget that the young child's development cannot be quickened, but only nurtured and enriched by our knowledge. How we nurture and enrich a child's development is the major concern of this handbook.



Craig Phillips
State Superintendent of Public Instruction

CONTENTS

		Page
	Foreword	i
	Contents	iii
	Preface	iv
I.	Beginnings	1
II.	Goals for the Kindergarten Program	2
III.	Characteristics of the Kindergarten Child	3
IV.	Organizing the Kindergarten	6
	Kindergarten Schedule	6
	The Classroom Environment: Outside	11
	Planning for Children	14
V.	The Teacher	19
	Role of the Teacher Aide	22
VI.	The Curriculum	24
	Communication	24
	Mathematics	32
	Science	37
	Creative Expression	42
	Social Studies	51
	Physical Education	55
	Integrating the Curriculum	60
VII.	Evaluation	65
	Evaluation of the Child	65
	Observing the Child	65
	Examples of Record Keeping	67
	Reporting to Parents	70
	Evaluating the Kindergarten Program	71
	Classroom Environment Checklist/Planning Guide	72
	Bibliography	83

PREFACE

The purpose of this publication is to describe a good educational program for kindergarten children. In compiling it we have gathered ideas and advice from many who teach or work with young children. We value their contributions.

This handbook is intended as a resource for administrators, teachers, parents and those who develop curriculum. We hope it will be studied and evaluated carefully, keeping in mind a five-year-old has a lifetime of learning ahead.

George A. Kahdy

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Assistant State Superintendent
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I. BEGINNINGS

The first kindergarten was established by Friedrich Froebel, a German educator, in 1836. He described his experiment in early childhood education as follows:

> The purpose of the kindergarten is to provide the necessary and natural help which . . . mothers require who have to be about their work all day, and must leave their children to themselves. The occupations pursued in the kindergarten are the following: free play of a child by itself; free play of several children by themselves; associated play under the guidance of a teacher; gymnastic exercises; several sorts of handiwork suited to little children; going for walks; learning music, both instrumental and vocal; learning the repetition of poetry; story-telling; looking at really good pictures; aiding in domestic occupations; gardening.
>
> Elbert Hubbard, Little Journeys to the Homes of Great Teachers, Vol. X, p. 246.

Since Froebel's time, professional educators have done much research into the psychology of learning, the physical and mental development of children, and the types of activities and programs best suited to their proper growth. New descriptions of kindergartens have been written, though none so easily understood. New analyses of purpose and program have been written, though none so simple and direct.

Today the content of a kindergarten program remains essentially what it was in Froebel's day --a "garden" where children may grow naturally and may develop their own distinctive personalities and talents in a child's world.

Kindergartens serve to extend the program of education in the most needed fashion, and at the same time, they provide young children with the kind of background that will make all formal education more effective. The early childhood years are the most crucial for learning. Research studies indicate these are the most impressionable years. The molding of character, intellectual curiosity, and behavior during these years has profound effects on the development of the individual.

II. GOALS FOR THE KINDERGARTEN PROGRAM

- Provide a setting in which the child will enjoy school.
- Help each child feel good about him/herself.
- Provide for the individual interests and needs of children.
- Use the child's interests and background as a basis for activities.
- Provide opportunities to learn academic skills through the day-to-day activities in which children are naturally engaged.
- Help each child develop a love of learning.
- Extend to each child an awareness of the world around him/her.
- Give each child opportunities to solve problems and nurture problem-solving abilities.
- Allow the child to make decisions and help sharpen decision-making abilities.
- Maintain an attitude which encourages questions.
- Provide an atmosphere where children can be related to in a sincere and honest manner.
- Help children realistically evaluate their world and their activities.
- Provide opportunities for children to make discoveries and use their discoveries as a basis for learning.
- Provide opportunities for the child to be creative.
- Encourage cooperation among children and stimulate the children's desire to help others.
- Develop self-reliance and independence.
- Provide for healthy social interaction among the children.
- Provide opportunities for children to experience a variety of adults in many situations.

III. CHARACTERISTICS AND GOALS RELATED TO FIVE-YEAR-OLD CHILDREN

Early childhood education is effective when it takes into account and provides adequately for the unique educational needs of young children. Specifically, these needs center upon the mental, emotional, physical, and social characteristics of young children.

Physical Characteristics

The kindergarten child:

- is quiet for only short periods of time
- needs frequent change in activity
- enjoys games with much movement, but fatigues easily
- is at the age of marked susceptibility to communicable childhood diseases
- has good motor control, though generally small muscle control is less developed than large muscle control
- has usually developed hand, eye, and foot preference

Goals for Physical Development

An environment conducive to the physical development and well being of kindergarten children provides opportunities for the child to:

- find acceptable outlets for tension and emotions
- develop muscular control, coordination, and grace
- enjoy being a participant in physical activities
- develop a sense of rhythm
- learn to care for his body and to value physical health
- learn and practice rules of safety

Social Characteristics

The kindergarten child:

- functions more effectively in small groups than in large groups
- needs attention and approval
- is eager to assume definite responsibility on his/her level of maturity
- is self-centered
- enjoys talking
- seeks companionship of other children, responds to group acceptance
- needs adult direction in learning to share materials and taking turns

Goals for Social Development

A kindergarten room in which democratic living is practiced will help the child to:

- understand his/her home and community
- learn from the group

- respect rules and understand the processes of ordered social relationships
- share and take turns
- practice politeness, thoughtfulness, and orderliness
- solve his/her own problems
- respect the rights and property of others
- achieve an understanding of the fact that people are alike, as well as different

Mental Characteristics

The learning capacities of kindergarten children at mid-year range from below four years to approximately eight years. Generally, they:

- are active, eager, interested, and curious
- are eager to learn, but most are not ready for formal abstract learning
- are interested in stories and books
- often confuse fantasy and reality
- learn by experience --observing, questioning, imitating, examining, doing, exploring, and investigating
- gain understandings of relationships through dramatic play, music, art, movement, and construction
- tell rather long stories fairly well
- like to draw objects and explain them in detail
- demonstrate increasing skill in thinking things through
- solve simple problems

Goals for Mental Development

An environment that contributes to the mental growth and development will assist the kindergarten child to:

- expand his/her perception of the world
- express him/herself orally
- develop listening skills appropriate for differing activities
- express his/her ideas clearly
- express him/herself through dramatic play
- increase his/her vocabulary
- enjoy books and poetry
- learn many songs, poems, and stories
- follow instructions
- increase his/her ability to plan and evaluate
- develop perceptual discrimination, reasoning, and memory

Emotional Characteristics

The kindergarten child:

- needs a sense of belonging
- responds to praise, affection, encouragement, and consistent direction
- searches for trust, fairness, and definite standards

- gains a feeling of security from routine
- needs to live in a reasonably predictable classroom situation
- needs reasonable freedom

Goals for Emotional Development

The kindergarten climate should provide a happy, realistic, interesting, and friendly environment for the child. Efforts are made to:

- help him/her accept guidance and authority
- help him/her learn to live away from home and family
- help him/her develop a sense of humor
- help him/her discover and use socially acceptable behavior patterns
- give him/her the opportunity to experience the joy and relaxation deriving from self-expression and physical activity
- help him/her develop a positive self-image

IV. ORGANIZING THE KINDERGARTEN

Kindergarten programs need to be thoroughly planned and carefully organized. While there is no one plan that will meet the needs of all children and communities, there is a need for routine procedures to provide a sense of security for the children. Flexibility should be a deliberate part of the organization. A sufficient degree of flexibility will enable the day-to-day operations to be altered to allow for special needs, circumstances, and interests.

The Kindergarten Schedule

A kindergarten time schedule is merely suggestive of what may be expected to be happening at any particular time of the day. Most kindergarten programs vary a great deal, but should include periods for free play (that time when each child is allowed to choose his/her own activities from a variety of interest centers), outdoor play, and refreshments and rest. Here again, the alternation of quiet and active, indoor and outdoor, is important.

At the beginning of the year it is necessary to start with some kind of framework when planning what the program will include. At first it is advisable to use a skeleton program until many questions have been resolved --such as the time for outdoor play, the nature of the group, and the general interest span of the children. On the other hand, the schedule should not be so flexible that the children feel a lack of routine and daily repetition. Later it will be easier to firm up a schedule that will allow for change and alternation based on the needs of the group.

A transition toward a more structured environment can be achieved through the natural activities of the school day. Children should be encouraged to gradually accept responsibility for caring for their possessions and personal needs, such as using the toilet, putting away the materials they have used, and making the room a clean and attractive place in which to live. If directions are given clearly and the atmosphere is free from strain and tension, the children willingly assume much responsibility for themselves as well as for the group.

Following are two sample schedules. Both schedules recommend lengthy periods in centers, thus allowing for children's different interests and capabilities. The teacher and aide will then work with the children in the centers.

Sample Schedule A - Kindergarten

8:00 Individual Welcome

Conversation

Choice of short, easy clean-up activities

8:30 Group Time
- calendar, sharing, story, presentation of new material

(Sample Schedule A contd.)

8:50	Centers - choice of all areas in classroom
10:20	Quick Clean Up
	Group Time - music, finger plays, poetry
11:00	LUNCH
11:30	Rest
12:15	Centers - quiet activities only
1:00	Outdoor Play
1:45	Centers
2:30	Group Time - sharing of day's activities

Sample Schedule B - Kindergarten

8:00	Individual Welcome
	Conversation
	Centers - choice of all areas in classroom
10:00	Quick Clean Up
	Group Time - calendar, sharing, story, presentation of new materials
10:40	LUNCH
11:10	Group Time - music, finger plays, poetry
11:30	Rest
12:15	Centers - quiet activities only
1:00	Outdoor Play
1:45	Centers
2:30	Group Time - sharing of day's activities

The Classroom Environment

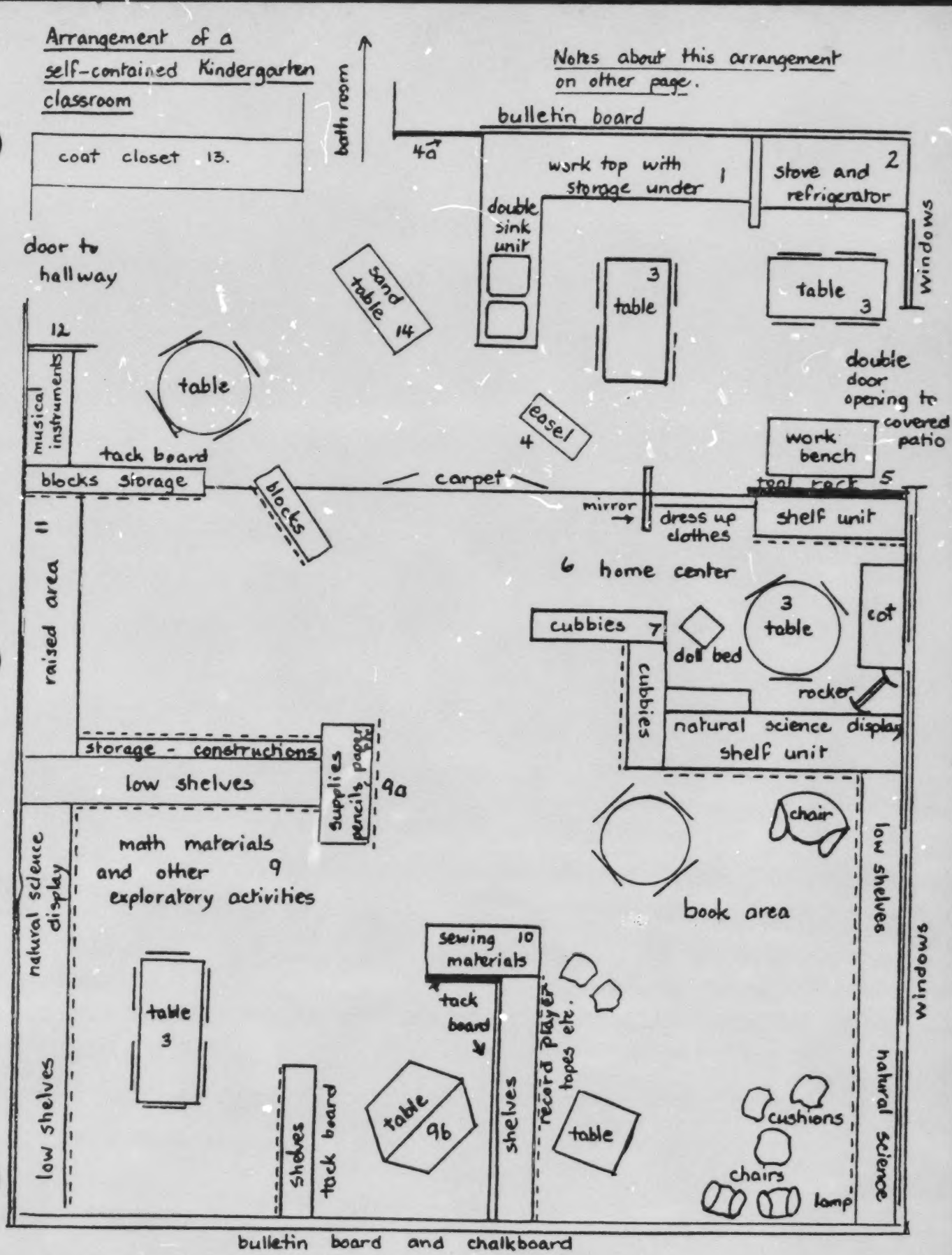
The classroom is an environment designed for children's learning. The teacher's task, in designing this part of the learning environment, is to select from the child's world situations that will be most stimulating. The young child will exercise responsibility and make decisions if the climate is right. Much of the learning that a teacher will wish to encourage in children will occur incidentally as they pursue their interests.

The underlying structure of the program rests to a great extent on the confidence the teacher has in children, on the teacher's preparation and presentation of resources within the classroom, and on communication with the children. Children are stimulated by and respond to a secure, happy atmosphere, with loving and caring adults.

It is not meaningful to replicate a model arrangement, for the areas used will differ in size and shape. However, there are criteria for the environment which should be followed as a sound basis for the early childhood program:

- An area of 1200 to 1500 square feet or approximately 60 square feet per child is recommended
- Windows low enough to allow the children to see outside
- Outdoor areas easily accessible to the classroom
- Good quality carpet covering for about two-thirds of the room, with the remaining area covered with tile, vinyl, etc.
- Sink units (a double unit, if possible) with warm and cold water
- Toilet facilities accessible to the classroom area
- Attractive and sturdily built furniture of suitable height for the children's use
- Storage units: free-standing and mobile
- A place to hang coats and extra clothing
- Cubicles or "cubbyholes" for each child
- Display areas for children's work
- Cushions and comfortable chairs
- A covered patio
- An outside area for planting
- An outside play area

See next page for sketch: Arrangement of a self-contained kindergarten classroom.


Arrangement of a self-contained Kindergarten classroom
Notes about this arrangement on other page.
coat closet 13.
bath room
bulletin board
4a
work top with storage under 1
stove and refrigerator 2
double sink unit
windows
door to hallway
sand table 14
3 table
table 3
12
musical instruments
table
double door opening to covered patio
easel 4
work bench
tack board
blocks storage
carpet
blocks
tool rack 5
mirror
dress up clothes
shelf unit
11 raised area
6 home center
cubbies 7
3 table
cot
doll bed
rocker
cubbies
natural science display shelf unit
storage - constructions
low shelves
supplies pencils paper etc
9a
chair
low shelves
math materials and other 9 exploratory activities
natural science display
book area
sewing 10 materials
tack board
record player tapes etc.
table 3
table 9b
shelves
tack board
table
low shelves
cushions
chairs
lamp
natural science
windows
bulletin board and chalkboard

Room Arrangement

The room arrangement on page 9 was one devised by a teacher for 26 children. The room enables the children to move about easily and allows for easy access of materials. The children group and regroup themselves, and the teacher may work with the total group, with small groups, or with individuals as needs dictate. This is a flexible arrangement that will change as the children work in the areas and need for change is seen.

1. Worktop with storage and sink unit:

   This unit offers storage for the great variety of art materials that are used by the children and, therefore, must be within their reach. Also, the work surface (formica or similar) adds to the dimensions of the art area.

   Some cupboard space for cooking utensils is provided. The double sink unit at a right angle to the wall is used from either side.

2. Stove and refrigerator:

   These are useful additions to any room where young children learn through the integration of varied activities.

3. The tables are mobile and easy to clean, lending themselves to various activities of children.

4. One or two art easels are provided. The tables (3) are also used for art work. A portion (4a) of the wall has a chalking surface and may also be used as a support for art surfaces.

5. The workbench is used in the room and outside on the covered patio. The tool rack is a framed pegboard attached to the back of the shelf unit in the home center. The tools hang on pegs with the outlines of the tools indicating where they should be placed.

6. The home center is placed to provide a feeling of seclusion for the children. The furnishings are modules, the purpose being determined by the children. The area becomes a hospital, an airplane, etc. depending on the basis for the play. Dress-up clothes add to the activity. A child-sized cot is a useful addition.

7. Two units of 12" x 12" cubbyholes provide a place which children identify as their own.

8. A cozy area for individual or group use provides a good selection of pictures, storybooks, poetry, and reference books. Plentiful display and storage spaces are available. Floor cushions and draperies of various colors and textures add to the attractiveness of this area. A rocking chair or sofa, a small table, and lighting add a further dimension. The phonograph, headphones, etc. may be used here.

9. Math materials such as scales, timers, measuring instruments, containers, graph paper, games, etc. are stored here. While it is convenient and necessary to identify storage space for certain materials and activities, their use will not be restricted to one area. Some consumable goods--paper, pencils, and crayons--may be stored here (9a) where they can easily be reached by children. A secluded work area (9b) is provided for the children.

10. Materials for stitchery and sewing are stored and may be used here.

11. A large area developed for unit block construction, which does not always have to be dismantled at the end of the day, is provided here. A raised area --a 12" high carpeted step--offers variation of surface.

12. This area provides materials for exploration of sounds (musical and otherwise). Triangles, chime bells, plus homemade drums and rattles, etc.

13. An enclosed closet is provided for children to hang coats.

14. Sand and water are among the most important materials for children to use. The sand table with a built-in storage space is mobile and sometimes is used on the patio. The additional provision of a sand pile outside is ideal. A water tray, or one of the sinks, and a plentiful supply of utensils and tools for both sand and water are part of the arrangement.

15. Shelf units used in various areas in the room are mobile and vary in height. Several are low enough to provide display and work areas for the sciences and also are used for other displays.

16. Bulletin boards are affixed to the wall and are fairly low, at a reasonable height for children to see and touch the displays. Some boards are fixed to the back of shelf units, providing additional display areas.

17. This area provides a convenient place for children to make their own books, book-binding rolls; chip-board, wheat paste, and measuring instruments are located here.

The Learning Environment: Outside

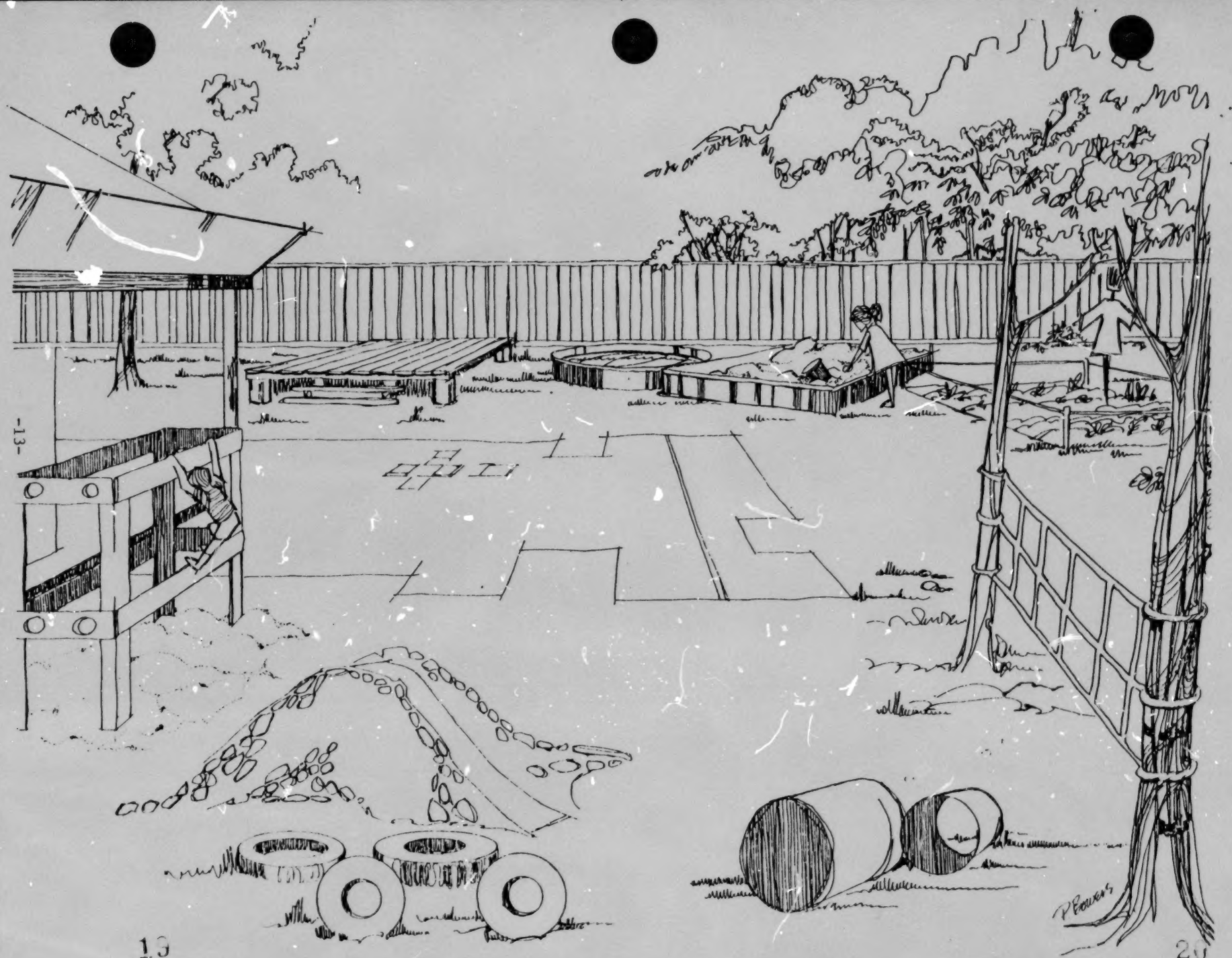
The out-of-doors is second nature to young children. They like the feel of the sun on their shoulders and the restful serenity of a shady tree. For this reason, the area should be an integral part of the learning experience. It is here that much large muscle development occurs, and children find out about their bodies in space.

The out-of-doors should provide many experiences and opportunities for children. Among provisions for the out-of-doors are the following:

1. 5,000 sq. feet of play space for every 30 children
2. Structures for climbing
3. Places to sit
4. Large open areas for running and organized games
5. Sand, enclosed by surfaces to protect the sand, and to sit on
6. A variety of earth forms: hills and flat spaces
7. A variety of niches: sand, grass, shade, and sun
8. Places for water play
9. Places for growing living things: plants and animals
10. Weatherproof electrical outlets
11. Covered area with work spaces available
12. Paved area for push toys, riding toys, blocks, and workbench
13. Readily accessible storage areas for equipment

Much thought and care should be given to the safety of children in the out-of-doors. Play spaces should be well protected from traffic or other possible dangers.

On the following page is a sample of how an out-of-doors area might look. It is not meant to be a model.



Planning for Children

Organizing the classroom as a learning environment is the responsibility of the teacher. The selection of materials and apparatus should reflect how young children learn. A classroom planned for children not only helps them to develop, it invites them to learn. The room is planned with certain interest centers. These are used for major portions of the day. Using these centers, the children move around freely and learn by doing. As they change activities, they meet different groups of children and have many contacts with the teacher. They learn to work and talk with others. They meet problems and solve them. They grow in confidence and self-respect.

Young Children Need to:	Children Learn by:
. Use their changing bodies	. Testing and exercising their bodies
. Explore the world around them	. Handling, tasting, smelling, observing
. Grow in language	. Hearing language tied to their own experience
. Organize their learnings	. Acting things out, living things again
. Learn to work with others	. Sharing materials and people
. Think of themselves as capable people	. Being accepted; solving problems in their own way

CENTERS

DRAMATIC PLAY (Housekeeping, Post Office, Store, Restaurant, Beauty Shop)

Purpose: Because the child's family and home are the biggest part of his/her world, much of the time is spent on imitating the things he/she sees there. It is fun to role play the lives of the people the child knows...their work...their feelings...their words.

Through this acting out--this dramatic play--the child is able to bring together the things he/she are learning and feeling about the world and self. Dramatic play helps him/her come to a better understanding of what can be done to help the child fit in. All of this enables oral language to develop in a natural setting and written language to occur (making a greeting card or grocery list) where it makes sense to the child.

Materials: Doll beds. Dolls. Doll clothes
Play furniture--sink and cupboard, stove and refrigerator--some or all
Dress-up clothes. Rack for dress-ups
Long mirror
Table, chairs (normal-sized plates, knives, forks, cups, etc.)
Cushions, carpet, drapes
Discarded telephone and telephone directory
Hot plate
Cooking utensils

Small oven
Puppets
Puppet stage/store front
Calendar, magazines, newspapers, scratch pads, pencils
Cash register, play money,
Cans and packages from foods

MATH

Purpose: Mathematics gives us a way of ordering our experiences. Concepts such as distance, pattern, balance, relationship, shape, etc. enable children to understand and begin to master their environment. At this early stage in a child's thinking, mathematics development occurs through real-life experiences using concrete or manipulative materials. Since mathematics development is an organic process, a natural outgrowth of interest, maturation, and a stimulating environment, it is a part of many of the child's daily activities.

Materials:
Simple balance scale--set of weights
Domestic scales--spring balance--personal scales
Never-ending variety of materials for use in balancing and weighing, counting, sorting, matching, etc. --beans, shells, bottle tops, buttons, rocks, washers, etc.
Measuring sticks, rulers, tape measures, ribbon and string for non-standard measure
Measuring utensils, cups, jugs, spoons
Funnels, tubes, cans, sieves, buckets, dishes, etc.
Cuisenaire rods, Unifix-pegboards and pegs
Large real clock --play clocks
Large and small wooden beads (colored)
Egg timers--stop clocks
Colored cubes, mosaic shapes, counters
Dominoes, dice
Playing cards

BOOKS (Listening, dictation, flannel board, puppets, etc.)

Purpose: Children learn the value of reading through many happy experiences with people and books. They find that books give pleasure and information. Their language grows. They begin to tell stories--sometimes using the flannel board or puppets--sometimes dictating to the teacher. They learn to use pictures and their knowledge of language to retell a story. In these ways, the child is getting ready to read. For the few who can read, the opportunity is given to read to an interested adult.

Materials:
Carpet, cushions, couch/chair
Display unit for books
Picture, story, reference, homemade books--a very good selection
Record player, tape recorder
Records, classical-traditional, vocal, stories, poems, etc. Tapes
Typewriter
Paper, pencils, crayons, felt pens, etc.

BLOCKS

Purpose: Block-building gives the child a chance to think, to plan, and to solve problems while moving freely and working with the whole body. Building with blocks, Tinker Toys or Lego helps the child to understand more about sizes and shapes. It helps the child to learn the purpose of numbers. Working, sharing, and talking with other children and the teacher, the child's language grows along with the understanding of people.

Materials:
- Storage units for blocks
- Plentiful supply of large and small wood blocks. Good variety of shapes
- Construction sets, Lincoln logs--Tinker Toy, Constructs Lego, etc.
- Set of farm animals and/or zoo animals
- Small cars, trains, etc.
- Set of community people

ART (Painting, clay, crafts)

Purpose: Through various media the child is able to express his/her ideas and feelings. The child learns that each of us has different ideas and different ways of working. In time, small muscle ability and eye-hand coordination develop. Such activities lay the foundation for later reading and writing.

Materials:
- Double-sided easels (2)
- Tables as work surfaces--two at least. It is useful if tables in art area can have formica tops.
- Large air-tight bin for potter's clay
- Storage for art supplies
- Collections of magazines, newspapers, wallpaper books, waste materials (beautiful junk!), etc. Storage for these items may be large, strong cartons, brightly decorated.
- Clay
- Crayons
- Powder paint/finger paint/water colors
- Printing supplies
- Glue
- Scissors

SAND AND WATER

Purpose: Play experience with water and sand are important for young children. Children need to feel that they can control and manage their world. Pouring water and shaping sand helps children to have this feeling. The nature of sand and water allows the child to experiment without fear of making mistakes. Also, through trial and error with appropriate accessories, the child develops mathematical and science concepts and the language to discuss these concepts.

Materials: Sand tray. Either on floor or at suitable table-top height for children. Damp coarse sand and dry sand. The trays can be metal, plastic or wood.
Water tray. The sink, especially if a double sink is provided, can be used for water measuring at first, but a tray or fairly deep pan is much less restricting, since water is an exciting activity outside.
Utensils for use with sand and water described in Math materials
Liquid detergent for bubble making
Straws
String
Large flat trays for soap solutions
Small cars, trucks, highway signs, minature community people

TABLE ACTIVITIES

Purpose: Table activities allow children to test themselves at problem solving. Match-games let them use their growing ability to see that certain things go together. Puzzles and peg boards give practice in coordinating hand-eye movements. Number games help the child to learn the function of numbers by counting and handling objects.

Materials: Puzzles, puzzle rack
Matching games
Table blocks
Lego
Beads
Counting objects
Playing cards

WOODWORK

Purpose: Tools are interesting to children because they are part of the adult world. Using them helps a child to feel grown-up and important. Real tools are needed because they help the child to finish the job begun. When a child hammers a nail or saws on a line, his hand and eyes have to work together. He is using muscles and solving problems that are important to him/her.

Materials: Tool rack--mobile, if possible--needs to be sturdy
Workbench. A low, old, fairly heavy table will suffice
Vise
Saws (2), hammers (3), drills (2), screwdrivers (3), and sandpaper
Supply of soft and hard woods. Nails, various sizes
A log for hammering on and into

MUSIC

Purpose: Children use their bodies and voices and learn to express themselves through music. They learn to hear differences in sounds. They listen carefully. They add new words to their speech. And most of all, children enjoy music.

Materials:
Record player/records
Tape recorder/tapes
Rhythm instruments
Piano or autoharp
Homemade instruments--drums, sticks, dried gourds

SCIENCE

Purpose: The more young children know and understand about their world, the more independent and confident they can become. The child is always encouraged to ask questions, to look for answers and to be aware of what is going on around him. The science area with a table for display of various collections shows him/her that his/her interests are important to others. Experiments, pets, and growing plants give the child new experiences to think about and new things to try out.

Materials:
Aquarium, terrarium
Animals (from everyday world --frogs, turtles, etc.)
Large and small magnifying glasses
Small mirrors, candles, flashlights, lenses, prisms
Magnets --bar and cylindrical --horseshoe
All strengths and sizes of materials for use with magnets
Old clocks, pulleys, small screwdrivers
Old nuts and bolts, old keys
Jars and plastic bags for collecting specimens
Plants
Materials listed under Mathematics

V. THE TEACHER

For the child, the classroom teacher is the single most important part of the learning environment. Each teacher should have an understanding of child development, respect for and trust in children, and a willingness to affirm children's rights as individuals.

Support Team for Teachers

For classroom teachers to function best, it is essential that they become part of a support mechanism which provides guidance, encouragement, stimulation, professional respect, and, at times, direct assistance. The superintendent, his central office staff, and the school principal can serve in a facilitative role, establishing a supportive atmosphere within each individual school. For example, each administrator or supervisor should have knowledge of the early childhood program and the individual teachers, and should be informed about available professional training opportunities for both themselves and teachers. The administrative team's approach influences both the atmosphere and organization of other structures in the school system.

The Role of the Teacher

The teacher's role is an elusive and complex one. While there is not any one particular pattern or model which can be presented and stamped as the definition of a good teacher, there are several specific responsibilities which apply to teachers of young children.

. The Teacher as Model

An important responsibility is being an effective human model for children. By personally striving toward openness, active learning, acceptance of personal responsibility, an open-ended approach to problem solving, purposeful listening, and an understanding and acceptance of others, the classroom teacher increases the likelihood of having a positive influence on the lives of children.

. The Teacher as Provider

The teacher is responsible for arranging the classroom environment in a pleasing and stimulating way to meet the needs and interests of each child. Meeting these needs is often reflected in how space is utilized to promote an easy and convenient movement within the classroom. It is of importance that he/she possess a knowledge of appropriate learning materials and organizational patterns for his/her children. The teacher is constantly gathering materials which reflect and encourage children's current interests and which also hold the possibility of sparking new interests. By providing a variety of materials which are open-ended, the teacher is making provision for choices by the children.

. The Teacher as Facilitator

The teacher facilitates the active exploration and learning of each child. Children need help as they experiment, observe, question, record observations,

or search for materials on a topic of interest. The teacher who is aware of the skill needs of each child is sensitive to situations where these skills can be incorporated most effectively. Being skilled in asking questions allows the teacher to know when and how to ask a question which promotes learning. The teacher also coordinates and facilitates the efforts of others who may be working with children, such as the resource teacher, the teacher assistant, community resource people, and parent volunteers. She coordinates by arranging for other adults to work with children in ways which are compatible with the already existing atmosphere and organization of the learning environment.

. The Teacher as Evaluator

The purpose of evaluation is to help the child. The progress made in total development--emotional, social, cognitive and physical--must be observed and noted by the teacher in order that appropriate activities can be provided. Observation and recording occur continually in the classroom, enabling the teacher to be responsive to the child's interest and to provide for relevant learning experiences.

. The Teacher as Recorder

Recording children's activities and behaviors unites all other roles of the teacher into one. There is no standard form of daily record keeping. What works for one teacher may not be practical for another. Each teacher should develop a method which works for him/herself. (See Record Keeping and Reporting to Parents)

. The Teacher as Continuous Learner

To fulfill the responsibilities of a teacher of young children, there is a need to pursue a course of professional development. Each teacher has the responsibility of developing a philosophical position. His/her philosophy is particularly relevant when confronted with educational advisors who offer conflicting views; a philosophy offers a means of sifting and evaluating the appropriateness of any given advice. This philosophy should reflect a knowledge and understanding of children. The following examples of teachers are offered to illustrate this point:

> Marie Adams responds with interest to new manipulative materials because she is convinced that children learn best when working with concrete materials. She has little interest in materials which lock children into a static sequence of skills in isolation, because she believes that all children are different and have different needs at different times. Since she perceives skills as tools to be used by children as they move along in their learning, she is interested in new activities which provide opportunities for children to develop and internalize skill as readiness and need are exhibited. She looks for different ways to help children grow in independence because she believes that children are to be trusted and will learn to accept personal responsibility.

A teacher must also engage in cooperative assessment of his/her professional qualities and work to help improve professional skills. John Williams is aware of the fact that he lacks understanding and knowledge of materials in the area of science. He begins with intensive reading in this area, which leads to an understanding of how simple science experiences can be integrated with other areas of the curriculum. He attends a local science workshop to pick up ideas for starting points in science. He explores the scientific world of his own backyard environment. With the help of a number of resource books and people, he begins to develop a personal interest in environmental explorations. He has combined the reading of current literature, workshop experiences, and his own personal exploration to strengthen himself as a classroom teacher and as a human being.

These are examples of how two individual teachers approach meeting their own professional needs. There are as many other approaches as there are teachers. It is not the correctness of an approach that is to be stressed, but that the path pursued be relevant to the individual. As the teacher develops himself or herself as a learner, appreciation of the learning process and competence as a teacher are increased.

Examples of the Teacher's Role

The following descriptions are offered to illustrate how a teacher might fulfill various roles in the classroom:

The room is arranged in centers. The program is informal in approach, the underlying structure developing from the materials and furniture, the preparation and planning stemming from the teacher's knowledge of children, their interests and their capabilities.

The teacher moves from area to area, assisting, suggesting, questioning and answering. Constant awareness on the teacher's part is what helps keep the children involved.

Sand - At the sand table, as in other areas of the room, there is much discussion. Two children have made two "volcanoes" from the damp sand. (They had seen a film on volcanoes after seeing Mt. St. Helens on television.) The teacher supplies two small trucks and talks with the children about the lava flowing from the cone. A short sentence or two is dictated to the teacher and is displayed near the sand table.

Art - Four children are modeling with natural clay, pummeling and battering the clay to release the air bubbles. One begins to shape the clay with careful fingers, and the shape of an animal emerges. The child's pleasure and concentration are evident. The teacher notices this and talks with the child about it. A place to display the clay animal is pointed out. A label will be made later and possibly a book about animals read to the children the next day.

Books - The teacher moves on to the book area where two children are concentrating on a recorded story. Two other children sit scanning a book. One child "reads" to the other. The teacher listens for a moment and makes a mental note that "the reader" has a very good sense of story and can almost match his/her voice to the print. (The teacher has read the book aloud many times.)

Math - Four children are playing Hi-Ho-Cherro-O with the aide. The teacher checks to see if all is well. Everything is going smoothly. He/she moves on. . .

Role of the Teacher Aide

For the child, another important person in every kindergarten classroom is the teacher aide. Like the teacher, he/she should be a warm, friendly, patient person who likes and understands children.

The aide works closely with the teacher, sometimes assuming full responsibility for certain centers or blocks of learning. The two plan and evaluate together, serving the same roles of model, facilitator and evaluator. It is a team effort from which children benefit in many ways.

. Suggested Tasks

1. Clerical -
   Collect money
   Keep attendance and other records
   Type class materials
   Prepare instructional materials (cutouts, charts)
   Organize instructional materials for learning centers (pictures, books, records, paints)

2. Housekeeping -
   Arrange physical environment to provide the best centers for children to work and play
   Arrange materials for accessibility
   Check ventilation and lighting

3. Instructional support -
   Accompany children to the lunchroom to assist with table manners, trying new foods, and to encourage good conversation
   Help children gain independence in getting, using and putting away materials
   Instruct children in safety in using materials
   Introduce new equipment and materials to children
   Assist with indoor/outdoor play activities, field trips
   Participate in activities planned for parents
   Work with individual children or small groups
   Assist during library period--reading stories, help check out books

4. Technological -

An aide should be familiar with the kinds of media which are being used by teachers and children. The familiarity should involve the ability to operate and maintain the following types of equipment:

16 mm projector (automatic and manual)
Filmstrip projector
Overhead projector
Opaque projector
Filmstrip-record player combination
Record player
Slide projector (automatic and manual)
Tape recorder
Filmstrip reviewer
Earphones
Copy machines
Others

The aide should become competent in making and/or displaying and using the following kinds of materials:

Transparencies
Pictures
Laminating
Charts
Recordings
News Clippings
Filmstrips
Slides
Tapes
Spirit masters
Lettering and lettering devices
Maps
Flash cards
Books
Others

5. Monitorial -
Help with wraps
Help with transportation
Check daily on health of children
Help arrange centers for the next day

Evaluation: Performance evaluation of the aide should be on a scheduled basis and should be carried out cooperatively with the teacher and principal.

VI. THE CURRICULUM

The kindergarten child's thought processes have not developed to a level to guarantee anything but frustration for those who favor drill-and-skill instruction that is in isolation and apart from the child's world. An effective kindergarten program takes into consideration the general knowledge of growth and development, as well as the wide range in rate, timing, and potential for learning that exists in young children. It provides a challenging and comprehensive curriculum in which children are actively involved in their own learning.

Planning a challenging and comprehensive curriculum that is based on the developmental needs of young children is perhaps the most important part of the process in implementing the kindergarten program. Young children need to experience activities and events that will help them to develop socially, physically, and emotionally, as well as intellectually. Any activity the teacher plans can provide the experiential base for many types of learning. For example, two or three children playing together with building blocks can develop a better understanding of numeration, measurement, and balance, as well as skills in other areas of the curriculum, including conflict resolution, fine motor control, visual discrimination and sequencing skills that are important for learning to read.

Just as social, emotional, physical and intellectual development do not occur in isolation from each other, an understanding of concepts and skills in math, science, language and social studies does not develop in an isolated way. However, for the sake of organization and convenience, the separate learning areas of the curriculum have been addressed individually in the pages that follow. The creative kindergarten teacher will plan learning activities that incorporate all areas of the curriculum. Some sample activities that are designed to integrate several curricular areas have been listed at the end of each of the sections that follow.

Communication

How Language is Learned

One of the major goals of a kindergarten program is to help each child learn to communicate effectively with others. Extending the child's existing knowledge of spoken language as well as introducing the child to the concept of communicating through print are also important communication goals for kindergarten children.

Before entering school almost all children have acquired a high level of oral language. Oral language has been learned by trial and error with many attempts to communicate with parents, brothers and sisters, and others. Through talking and listening the child has internalized a set of rules for dealing with spoken words, rules based on the consistent and regular features of our language.

Using and Developing Language in School

Further language development in school should take advantage of each child's strong oral language base. Through continued emphasis on natural language growth the kindergarten child can begin to use language more effectively. The entire learning environment should be designed not only to stimulate the child's natural curiosity, but also to encourage talk with other children as well as with the teacher and aide.

The Source for Language Development

Total language development revolves around children's exploration in a richly provisioned environment. The greater part of each school day is spent with children working with manipulative materials. There are blocks and woodworking materials for construction. Sand and water are available for exploration and discovery. In addition to the housekeeping area, children have access to various natural and mechanical objects including media, cooking materials, musical instruments, plants and animals, puzzles, games, and toys. As they become accustomed to the structure and regular provision of such interesting and stimulating materials as clay, sand, water, paint, dress-up, blocks, books, etc. they will begin to use materials more selectively. Such materials are particularly important for the young child because of their very nature they are open ended --demanding nothing from the child except what he can make of it. As the children use these materials they become whatever the material suggests to them --mother, father, astronaut, boat captain, construction worker, etc.

Every encounter with the aforementioned materials is used as an opportunity for talk. Talk is seen as legitimate, talk to himself, talk to other children and talk to the teacher. Nature and other excursions also provide opportunities for observing and listening to sounds and are reconstructed through reliving the experience by talking about it, painting about it. dictating about it, building about it, or the teacher reading aloud about it.

The Teacher's Role

Sensitive teachers nurture language development when talking with the child. Based on first-hand experiences teachers paraphrase and extend ideas and ways of expressing these ideas. The teacher understands that first-hand concrete experience is the source of language development and that language development actually occurs while the child is actively involved in a direct experience. The teacher then finds countless opportunities to nurture language development throughout the school day and in all areas of the classroom.

Using his/her knowledge of child development, resource materials and working with the same children day after day, the teacher is able to accept and deepen children's interests, record their thoughts and ideas and help them to share their discoveries with others. Thus the classroom and its extensions are where language develops --where experience is used to extend language and where language is used to interpret experience.

Linking Spoken and Written Language

How do we move from this meaningful use of oral language to the understanding of and use of the printed word? This doesn't occur from one day to the next; rather the child is surrounded by the printed word, and it is those words that the child begins to understand as he hears them used and uses them.

Since each child is different, each developing at his or her own pace and own way, a rigid plan for beginning reading and writing is inconsistent with the nature of children. Our main concern is to help children toward literacy by building on the child's individuality. In this process children go through various phases. Some children will move through all phases; some will skip or intermingle phases. The teacher must be aware of activities which are most beneficial to helping each child become literate.

- Make the kindergarten classroom a literate environment by displaying charts for songs, rhymes, and recipes. Label lids and containers. Use a calendar and message board.

- Do activities which require reading or writing such as cooking (following the recipe) and making greeting cards (writing or tracing the greeting).

- Provide paper and pencil for "grocery lists," copying a recipe, or writing down telephone numbers.

- Read the same stories over and over when requested. This repetition helps the child link the print with the story he remembers --an important step in learning to read and write.

Awareness of Written Language

- The teacher should read to children every day, selecting appropriate material from children's literature. This reading can be done one to one, in small groups and with the whole class.

- Children learn words from familiar packages. A grocery store can be set up in the classroom to facilitate this activity.

- Different types of books and other written material should be available to answer questions and provide information for children. In this way the practical use of written language will be evident.

- Names of the children, words and phrases should be placed appropriately around the room. Labels of "buildings" at the block center, a name for the play store, and titles of displays are examples of these words and phrases placed around the room.

Taking Dictation

. The teacher and aide can begin to take dictation when the child can give clear oral expression to his or her own ideas. It is usually best to take down the child's exact language, using his own grammatical structure. Taking dictation may take place at the block center, describing what has been built; at the art center, describing what has been painted; at the writing center, describing some situation that has happened, etc.

. The teacher immediately reads the story aloud to the child, pointing to each word as she reads.

. The teacher and the child 'read' together. The teacher reads the rereading, and the child 'reads' from memory just as he would 'read' a favorite story book.

. The child might 'read' his story to other children.

. The caption of the story should be displayed with the child's name or bound into a booklet and read many times.

. Group experience stories are another valuable technique. They tell of a common experience or topic of interest, discussed by some children and written by the teacher or aide. A sentence is written and then illustrated so that the children can 'read' it from pictures. More sentences and illustrations are added. As the teacher reads the story aloud, she sweeps her hand under the words as she reads. The children are invited to join in the re-reading.

The chart should be displayed at eye level for the children to reread. Group experience stories are only to help children understand what reading is. Children are not required to read stories individually. Later the children may refer to the words on the charts when labeling their pictures.

Tracing

. At the suggestion of the teacher or aide the child might trace over the dictation. The child is shown how to begin with the first word in the story and traces from left to right. Many children like to use a felt tipped pen for tracing.

Copying

. As the teacher takes dictation, space is left to copy the words directly under each dictated word. Some children will trace and copy their dictated stories.

Recording Experiences

. As taking dictation progresses, it isn't long before the child can take over the pencil and print the word that he knows. Teacher and child sharing the task of recording is an important transitional step.

. Some children in kindergarten will be able to take more and more of the recording. A blank dictionary or cards may be appropriate. When the child needs a word for a story, the teacher writes the word on a card or in that child's personal dictionary.

Using Literature

. Many opportunities should be made for whole class story time with children looking at pictures and print as much as possible as the teacher reads. Opportunities for small group listening, as well as having a child sit on an adult's lap should be made frequently.

. In addition to traditional picture books and information type books, the book corner will also have "instant" or "predictable" books. Children can usually "read" the "instant" books for themselves after the books are read to the children. Pictures and sentence patterns give clues which make this possible.

. Opportunities for retelling a story book or reenacting a story through play also aid in a child's readiness for reading.

. Time should be given to the few children who can read. This time will be to listen to the child read individually, to talk about the story and to help choose a new book. Children at this stage will be rereading their own stories, reading stories written by other children and reading easy-to-read books. Care should be taken not to emphasize this child's early reading development, but keep it within the context of the regular kindergarten program.

Learning Basic Concepts of Literacy

If reading and writing is seen as an outgrowth of actual experiences, many children in kindergarten will begin to acquire these skills:

. Understanding of print going left to right, top to bottom

. Basic sight vocabulary of personal words (such as names - Susan, Joey, Belk's, pizza, Cheerios, TV)

. Knowledge of different types of written material

- books for pleasure (recognition and memorization of favorites)
- books for information (cookbooks, dictionaries, animal and plant books)
- newspapers
- magazines
- comics
- signs in the environment (STOP, Eckerd's, K-Mart)
- labels on packages used in their environment (Rice Krispies, Jello, Jiff, Tide)

. Understanding of the term --word, letter, space, sentence, etc.

Examples of Children's Activities:

Housekeeping - In addition to the usual props which help promote conversation, providing magazines, books and newspapers will give the children an opportunity to role play their use. Grocery store items in the kitchen along with pencil and paper for "grocery lists" will add another dimension of literacy.

Science - Resource books dealing with various topics such as trees, insects, frogs, rocks and shells are provided for identifying and labeling collections made by a child. When a child brings an object such as a shell, the teacher helps the child examine it and identify it, using language in the process. If appropriate, the shell may be labeled (written by teacher and traced by the child), or a homemade book begun about shells. Again, in most cases the teacher will do the writing with the child drawing or painting the pictures and tracing or copying the words. Sharing the finished product with other children is also an important part of the process.

Blocks - Props such as puppets, road signs and cars help stimulate the building or re-creation of a construction. With appropriate stimulus from the teacher, such props also help extend and enrich the children's language. Signs and labels on finished constructions also help the children see real use of written language.

Mathematics

The kindergarten child acquires mathematical understanding through experience and discovery. This understanding is derived from a classroom where there are many opportunities to learn about volume, balance and weight, time, length and area, shape, size and number.

Each day the kindergarten teacher should elicit mathematical thought, action and language, by having children interact with other children, with materials, and with adults. Experience thus gained fits into each child's framework of knowledge, and this knowledge is consolidated by many opportunities to repeat the variety of activities.

The processes of gaining a solid foundation of mathematical understanding take a great deal of time, and careful guidance. By trying to speed up the process the child often makes only superficial gains which actually mask deficiencies of understanding. Children need many mathematical opportunities over an extended period of time in order to develop a storehouse of perceptions and relations.

The Importance of Concrete Experiences

Mathematics gives children a way of ordering their experiences and enables them to understand, as well as begin to master, their environment. That is why mathematical development, like language development, should be viewed as an organic process--an outgrowth of interest, maturation and a stimulating environment. By structuring appropriate activities with sand and water, arts and crafts, block building and construction play, music and movement, cooking and dramatic play, the child will discover mathematical relationships.

Children learn best from real life experiences, not from abstract assignments or contrived situations. Additionally, children learn by watching what is taking place around them, by handling and experimenting with materials, by discussing their thoughts and feelings, by questioning what they are seeing and doing. Without a foundation of experiences using concrete or manipulative materials, the development of abstract thinking is severely hampered.

A wealth of materials should be available in the classroom, and children should be given time and freedom to pursue activities. In this way, children will gain a true understanding of mathematics while enjoying a variety of "hands on" and practical experience. These materials need to be accessible to the children and attractively arranged. Labeling shelves to denote where things are kept is good housekeeping and promotes language development. (See materials section for suggestions).

The Teacher's Role

The roles of teacher and aide are vitally important. As the teacher and aide observe the manner in which a child approaches an activity, they will begin to gain a true understanding of the child. As children talk about what they are doing, enter into conversations and ask questions, their understanding can be extended. Children will know that mathematical concepts and skills are important if the teacher and aide use math in a practical way in the classroom.

Concepts which have traditionally been presented in the abstract, such as one-to-one correspondence, addition, greater than and less than, have an underlying meaning and purpose which young children must be able to understand in a very real way. Giving children pages of simple addition or coloring sheets as a daily math assignment is only providing repetitious practice in counting, writing, and coloring numbers which may add little or nothing to true understanding and skill development. Even worse, children often learn patterns or trick ways of carrying out these exercises without knowing what they are doing. This practice often covers up children's inability to understand and makes them vulnerable to future difficulty. In fact, many children who do poorly in math in the later grades have had the ability to complete work sheets easily in the primary years. Because they have appeared to be good at math, they may never gain true understandings through working with manipulative materials and dealing with practical problems.

Although the teacher is ever mindful of mathematical experiences which will arise through day-to-day regular kindergarten activities, it is still important to consider the various aspects of mathematical knowledge. The skillful teacher will make sure that children have an opportunity to learn about all aspects. With this fact in mind, a few examples are given in each category.

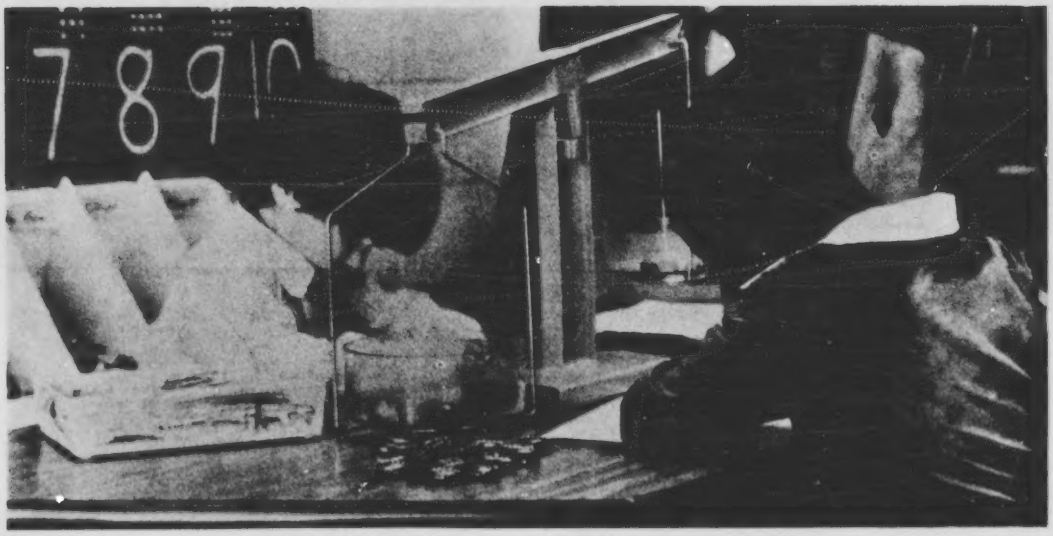
Examples of Concept Development

. Quantity and Number

Quantity and number belong to the real world and cannot be isolated from it. It is natural for the young child to explain, for example: "Your candy bar is bigger than mine," "three brothers," "two sisters," "five cups," because number vocabulary has been a growing part of life prior to coming to school. It is the task of the teacher to provide for mathematical experiences in such a way that the child will continue to relate them to his world, rather than to something which only happens at school. It is also vitally important that the teacher recognize the child's growing awareness of quantity and numbers, not only in activities designated as mathematics but in other areas also. Then the mathematical skills and understandings are by-products, surely very important by-products, but still something that happens as the result of meaningful experiences. "Each baby doll must have a bottle," announces Michelle, and she takes three bottles and puts one on each of the three dolls (one-to-one correspondence). Two children are building a bowling alley. One says, "Let's put all the big blocks here," (sorting and classifying); the other says, "Here, you need two more," (addition). The scissors are kept in one container, the pencils are kept in another (classification).

. Balance and Weight

The many things children will need to balance and weigh is a category of materials. Standard weights will be less confusing when the children have experienced balancing and weighing non-specific units--and are able to observe, for example: "One rock balances ten bottle caps." Knowledge will occur only after a great deal of exploration and will only be really significant then. The teacher may ask such questions as, "How many acorns balance the red key?" She may suggest that the children report to her and later she may record their



findings. Cards to initiate further exploration may be of help to the teacher but do not serve a purpose unless they are geared to the capacity of the children. Repeating the format of the question is helpful, varying it to extend the understanding, for example: "Use the red tin as a weight. How many bottle caps balance the red tin?"

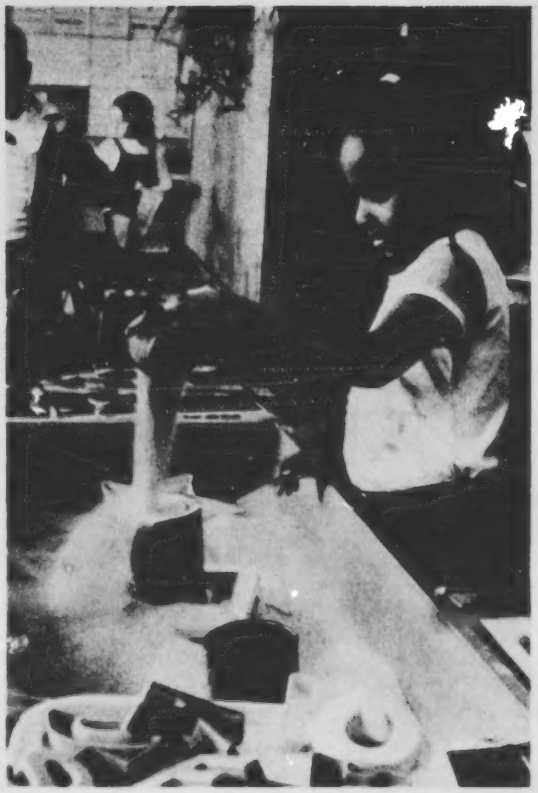
. Length and Area

Many opportunities occur when children will find a unit as a means of measuring --"It takes 10 long blocks to go across the rug." "I put 25 bottle caps along the red stick." Non-standard units of measurement make the practice of measuring very much easier to absorb and will be incidental in a great many activities. "I'm as tall as the blue shelves." "Six cones are the same as 7 milk cartons." "The table is 10 footsteps long and 14 hand spans long." An understanding and use of standard units of measurement will come later if a variety of non-standard units are provided throughout the primary years.

Two young children drew around each other on large pieces of brown paper and painted their models. One commented, "I'm bigger than my picture." They talked as they worked and the teacher wrote down dictated comments. Three other children were prompted to draw around each other. They measured in hand spans, comparing, counting and writing numbers.

Recording the outcome of the experiences is often first done by the child's commenting verbally. Later there will be dictated stories to account for the experience, leading to a pictorial explanation.

. Volume and Capacity



Instead of being constantly presented with ready-made problems, open-ended materials are provided so that children find their own. By their very nature, sand, water and clay are such open-ended materials. "How can I fill the red bucket with sand?" a five-year-old asks himself. He uses the scoop and charts the number of scoops as he works. The small red can is used to fill the large blue can with water. The tall, thin bottle holds the same amount as the short wide bowl. The child discovers this! His delight in his work is obvious, and he shares his excitement with others.

The teacher will offer open-ended problems to children, where one answer can be equally correct as another, and where the activity does not have a specific starting or stopping point. Having approached the question, many others will be subsequently answered.

. Size and Shape

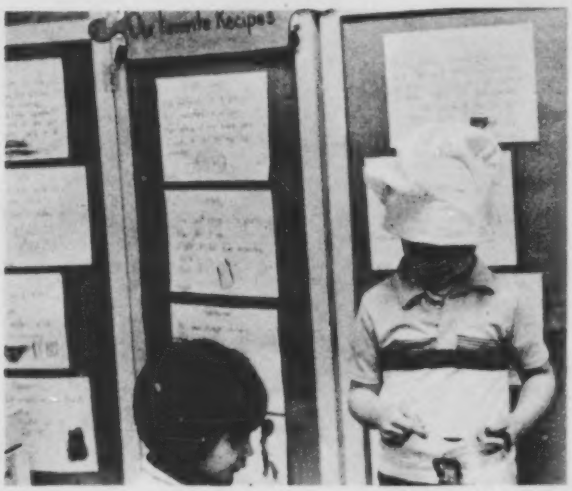
An awareness of shape and size will certainly be provided for in the art resource area, and the results of a "math" activity may be a pattern of shapes and color.

Provision of blocks for construction also helps children gain experience with shape, size and space. A group of boys and girls were constructing a long bridge with blocks. One girl began to determine the distance between the two upright supports by placing the transverse block on the floor between them. She then discovered the supports needed to be moved together slightly to prevent the bridge from collapsing. The approach was appropriate at her stage of development and was influenced, without doubt, by extension of the

bridge merely by estimating and placing his blocks "by eye," while two other children were having difficulty in adjusting the support blocks to the transverse block. These children were working within their experience, and the activity provided opportunities for discovering more about size, shape, space and distance.

Examples of Children's Activities

Woodworking - Provision of various sizes of soft wood allows children not only to create something, but gives practical use of measuring, comparing, etc. The child who wants to make an airplane for the block center can (with supervision) cut balsa wood wings, body, etc.



Cooking - As a small group of children "read" and follow a recipe with the teacher's help, they develop a sense of what mathematics involves. Through measuring, sifting, pouring, and using such words as full, 2 tablespoons, 30 minutes, 350°, they not only gain the practical experience necessary for mathematical concepts to develop but also hear and use the vocabulary necessary to communicate such knowledge.

Science - Keeping classroom pets can be an opportunity for mathematical development. Discussing and recording the size of the guinea pig and keeping a chart of amount of food eaten are appropriate activities for children. Making a maze from the blocks for the mouse, gerbil or hamster and counting up how long it takes to find its way out is another activity that has mathematics involved in it.

Science, for young children, is finding out about the world in which they live. Children have a natural curiosity about their surroundings, and the methods of science are their natural way of exploring those surroundings. Children will use such methods with or without our help, but they will use them to far greater advantage if we recognize them, too, and give encouragement.

How Children Learn

Science is very much interwoven into the activities that normally occur in the kindergarten. It is often indistinguishable as a separate activity. Indeed to be used in a meaningful way, science must not be treated as a subject to be studied only at a set time on the schedule. Rather it must be seen as a particular way of working to be used at any time if it will lead to greater understanding of the children's world. This is not easy. It is difficult for adults to think as the young child thinks. Piaget has provided us with detailed descriptions of how children think and of characteristics of their thinking at different stages of their development.

The Preoperational Stage

This stage particularly interests kindergarten teachers because it encompasses a range from two to two-and-a-half to about seven years of age. Children at this stage have not yet developed the ability to think logically or abstractly; reasoning is often unsystematic and does not lead to the generalization or formation of logical concepts.

1. Preoperational children's thinking is bound by perception. Children can focus on only one attribute of an object at a time, usually the most predominant feature, such as size, shape, or color. Although centering prevents children from observing other properties of an object simultaneously, it nevertheless enables children to acquire knowledge about the object. This physical knowledge is prerequisite for the development of logical thought.

2. Preoperational children can focus only on the beginning or end state of a transformation, not on the transformation itself. Children can confirm that two balls of clay are equivalent in amount. However, when one ball of the clay is transformed into the shape of a sausage, children can no longer establish that equivalence. The sausage-shaped piece usually is perceived as longer, and therefore children generally conclude that it has more clay. Preoperational children's thinking is not reversible.

3. Preoperational children are unable to conserve and thus are not able to recognize the invariance of a number of objects when their spatial arrangement is transformed. Young children also cannot compensate for changes in dimensions. When an equal amount of water is poured from a tall narrow glass into a short wide glass, preoperational children do not recognize that a change in length is compensated for by a change in width. The ability to conserve marks the gradual transition from thinking that is perceptually oriented, large intuitive,

and irreversible, to thinking that is logical, flexible, and reversible. Research has shown that these changes in thinking appear between the ages of five and eight.

Preoperational children's inability to think logically does not mean they are deficit thinkers. On the contrary, these children are exploring, manipulating, questioning, comparing, contrasting, labeling, and forming mental images. These activities lay the foundation for the development of children's ability to think logically.

The Preoperational Child's View of Reality

For young children, anything that moves is alive--a cloud, a truck, branches on a tree. They also have difficulty understanding change in organisms--the transformation of a seed into a plant, the metamorphosis of a caterpillar into a butterfly or a mealworm into a beetle. Their understanding of cause and effect relationships is not at all objective at this stage either, so although it is important to answer their questions, it is probably fruitless to ask such questions as, "Where did the water go?" (evaporation); "What happens to the sun at night?" (rotation of earth and sun).

Implications for Science Education

Because preoperational children learn by acting on objects, concepts must be developed through manipulation of item within the children's immediate environment. Abstract concepts outside the realm of immediate experience should not be included in the kindergarten science curriculum.

In order to truly involve children in learning about things, rather than to verbally teach them about science, it is essential that the teacher:

. Develop Attitudes, Interest and Aesthetic Awareness

The richer the learning environment, the greater the opportunities for learning.. Kindergarten teachers who live up to their reputation as the world's greatest scavengers will have no difficulty in finding appropriate materials for exploration and discovery. For sand and water play, the teacher will need to supply pots, pans, cups, bottles of all sizes and shapes, food coloring, tubing, spoons, tin cans with holes punched in them, etc. The block area is a good place to put a junk box filled with just about anything--toys, sticks, scraps of cloth, spools, signs, etc.

Caring for guinea pigs, gerbils, frogs, salamanders; planting from seeds; baking and booking. Such materials, and the activities they encourage, embody all the necessary conditions for the kindergarten child to be interested in science.

Encourage Observation

Acting on objects and seeing how they react. Babies react to stimuli from the moment of birth. Young children will respond in some manner to any object or material they first encounter. First encounters with block building, painting, cooking, sand and water activities elicit an immediate response to become involved. It is important to give children time to examine an object, using all of their senses. They will want to learn all they can about the object and discover how it reacts under certain circumstances.

It is natural for children either to bring in objects or to be interested in what the teacher brings. The teacher needs to encourage these collections and allow children to use all of their senses in exploring and discriminating what they bring. By making comparisons among seeds, leaves, shells, rocks and various other items found in their environment, children look, touch, taste, smell and listen. All of this naturally leads to asking questions. Listening to children's questions and helping them find answers through their own discoveries is crucial to the development of their intelligence. Needless to say, this willingness to ask questions on the part of the child needs to be highly valued by the teacher.

. Encourage Children to Predict

Acting on objects to produce a desired effect. As children develop, they build experience and have more to bring to the solution of problems. They continue to explore, but they also engage in actions to produce desired effects. Children can be heard to say, "I'm going to paint a tree," or "I'm going to build a bowling alley." Because of prior experience with the material, they are able to decide what to do beforehand. Children enjoy making predictions. Sometimes their predictions prove to be wrong, but this, too, is how children learn. The astute teacher will be close at hand to encourage and support and provide for more experiences that will encourage discovery.

. Encourage Children to Classify

Grouping or sorting objects according to some common property. During explorations, children should use another important process skill: classifying. Even though preoperational children can only group objects on a perceptual level, such an ability is a prerequisite to high-level classification skills. Numerous opportunities for classifying objects present themselves in the kindergarten classroom: classifying sounds (higher-lower, louder-softer, pleasant-unpleasant); classifying animals (tame-wild, furry-non-furry); and classifying leaves according to color, shape and size. The children must decide upon their own classification schemes; otherwise, they are not constructing the relationships themselves.

. Encourage Children to Communicate

Any quality program provides children with numerous opportunities for communicating--with each other, with their teacher, or with some other adults. The quality of the conversation, however, is of prime importance, as is the adult's understanding of the child's intellectual development.

Conclusion

The science program should be child-centered and a activity-orientated; it should provide children with a varied environment to explore at their own pace, and according to their cognitive abilities. In their active explorations, children should be encouraged to observe carefully, note similarities and differences, make predictions, test out their predictions, ask questions, and interact with one another and with the teacher. They should be constantly encouraged to think and talk about what they are doing and seeing. Children will not only be learning science; they will be engaging in experiences that develop logical and systematic thinking.

Examples of Children's Activities

Observation and Classification

Bring in several packages of seeds--grass seed, vegetable seeds, fruit seeds, etc. Put them in trays and let the children examine them carefully. Discuss similarities and differences in how they look, feel, etc. Give each child an assortment of seeds and let them divide the seeds into categories (by color, size, texture, etc.) Label each category for the child, and let each child trace over the words you have written.

Observation Prediction Communication

Let the children pick one seed to plant. Help them fill a milk carton with soil, plant the seed, water it, and place it in a sunny window. Let the children observe the growth of their seeds and dictate each day's observations for you to record in a class book. Leave space at the top of each day's recording for one student to draw what he observed. Once the book is completed, the children may act out the process of a seed turn-into a plant.

Communication

Read to your students, The Carrot Seed, by Ruth Krauss. Discuss the similarities and differences between their classroom experiences with growing seeds and the little boy's experiences.

Observation

An individual child might describe what he/she sees the pet guinea pig do, and the teacher can help make a book to preserve the observations. The following sentences would be on individual pages:

"Things Noticed About Rip Zip"

Rip Zip was scratching himself with his back foot.
Rip Zip was washing himself with his front paws.
Rip Zip has 3 toes on his back feet and 4 on his front feet.
Rip Zip turned his head right around and washed the middle of his back.
Rip Zip eats oats and bran in the morning.
I saw Rip Zip washing underneath himself.

Observing and Recording

As seeds are being planted, the teacher will have the children describe the seeds and will take dictation from the group. It might read as follows on a group chart displayed near the seeds:

> April 28 - Yesterday, we planted mustard and cress on a big dish. The mustard seeds are yellow, and the cress seeds are brown. The mustard seeds are bigger than the cress.

This activity could be continued as changes occur in the seed germination.

Creative Expression

The kindergarten child needs many ways to express personal thoughts and feelings. As verbal expression develops, so must expression through art, music, dance/movement, creative dramatics, and literature.

Young children's abilities differ, depending on maturation, home background, earlier experiences, and exposure to manipulative materials. Nevertheless, the potential for creative expression exists in each individual, and the desire for self-expression is natural. Time must be provided for these opportunities. Children often need help in understanding the use and care of materials. After this they should be free to work and create on their own with minimum instruction.

Each day there should be time provided for children to become aware of the creative expressions of others. Exposure to works of art, music, literature, and drama are important experiences for young children. It is also important for the teacher to share personal creations with the children.

Art

The child should be allowed a choice of media through which to express feelings and ideas. Paint, chalk, clay, fabric, and printing materials should be easily accessible to children. The opportunity to work with these materials should not be used as a reward for completing other work, but should be used as an extension of other activities or as a starting point from which other learning extends. There is also a time for children simply to create. This creation need not connect with anything before or after it; it is purely a personal expression of the moment on the part of the child.

It is not enough to have materials alone. As with any creative activity, children must have ideas to express. These ideas come from real experiences with real materials and with other people. A skillful and sensitive teacher will encourage creative expressions which relate to experiences that are particularly meaningful to the individual child.

The following types of media should be used with the children:

Painting

A good variety of brush sizes is recommended. Long handled brushes are easiest for young children to manipulate. Brush heads can range from fine to 1 1/2", 2", or 3". Brushes should be stored head-upright in a can after cleaning to allow the bristles to dry.

The primary colors, red, blue, and yellow, are essential if children are to discover a "color" vocabulary, and black and white offer tone variations. Powder paint can be presented in a thick mixture in jars or in dry form in

muffin tins. The dry powder offers a different experience and challenge from that already mixed. Palettes, which may be muffin tins or old plates, will be required for color mixing. As they work, children will discover a great deal about the information of colors. Initially, "mud" colors will result, and it is important not to discourage these efforts -- children will slowly learn to keep their colors clean. An adjacent supply of water (a container on the table or easel) for rinsing the brush is helpful.

A choice of work surfaces should be available. Wet, drippy paint is easier to control on a flat surface, and the floor or table will be preferable to working at the easel for some children. The variety of paper available offers a choice of both size and texture for the child. Large paintings are easier to control, and allow the naturally large movements with which the young child is often most successful.

Printing

Many of the "junk" materials basic to the art resources -- wood, cylinders, lids, spools, etc. -- can be used for printing. Cut vegetables such as peppers, onions, potatoes, etc., can also be used. Crumpled paper, cloth, and sponges are "tools" for printing, as are hands and feet. Natural materials, like leaves, grass, etc., produce very exciting prints.

Some of the techniques required will be discovered, while advice will be given in some instances. Too much printing medium (which might be paint, ink, food coloring, etc.) will produce a blurred image, and children find it very hard to control. But, if they experiment without being constantly cautioned, they will enjoy the unexpected results. Pads of color can be made with a sponge or cloth soaked in the medium and placed in large jar lids.

Another form of printing results when a textured surface is covered with paper and the surface is rubbed to reproduce the pattern of the texture onto the paper. A smooth paper (duplicating paper or printing paper) placed on the textured object -- a leaf, a metal grating, the bark of a tree, etc. -- and lightly rubbed with wax crayons will produce a pleasing "print." Children enjoy experimenting with this and will discover some successful printing surfaces.

Imprinting objects into clay is a further method of reproducing the likeness of the shapes or patterns of an object.

Collage

The variety of "found" materials previously described may be used by the children in developing panels of color, shapes, and illustrations, covering large or small panels. Paper tearing, or cutting free forms in paper and cloth, is another means for children to work at picture or pattern-making.

Storage for junk and collage materials needs careful consideration and some sorting may help--coffee cans will be suitable for storing smaller items such as seeds, beans, and buttons, and large, shallow cartons will be useful for keeping packets and boxes.

Sewing and Stitchery

Sewing is an activity which young children enjoy. They will make all kinds of items with the materials provided. They generally like to complete things fairly quickly. Boys and girls will design and sew such things as mats, purses, puppets, dolls, doll clothes, animals, etc. It is important to appreciate these endeavors, for they are significant for the initiative the child has used in producing the article, and not necessarily for the skill the child has or has not shown in stitchery.

Patterns can be provided and can have simple instructions included. Use stiff paper for the pattern pieces and label each piece clearly. A large, strong envelope glued and stapled to the inside of a manila folder provides suitable storage for each pattern. Simple patterns may include: "How to make a puppet," "How to make a doll's dress," "How to make a purse," and "How to make a mouse." Old socks, stuffed and with button eyes added, become all kinds of creatures: puppets, dolls, animals, etc.

Children will make their own interesting designs on pieces of burlap or other suitable, loosely woven cloth. A variety of colors and shapes will encourage individuality. If the back of the burlap or cloth is edged with masking tape, fraying will be avoided. Large-eyed blunt needles and yarn are most suitable for this type of stitchery.

Sewing materials can very adequately be stored in boxes. One large box can hold smaller boxes containing needles, scissors, buttons, etc. A large box or carton is suitable for cloth. Labels on the containers in clear lowercase lettering will help the children to replace items correctly.

Weaving

Reproducing the regularity of the usual woven pattern may be beyond the skill of young children. However, by providing large looms (a wooden crate makes an ideal frame) experimenting with "weaving" will develop the child's awareness of pattern repetition. Very pleasing effects can result from various materials being used in the process. As well as the usual thick yarn, ribbons, cloth strips, grass, straw, flexible twigs, feathers, etc., can be incorporated freely into the weaving.

Pottery Clay and Other Modeling Materials

Moist clay has a pliable property that both children and adults enjoy. Pummeling and beating, and rolling and wedging the clay into a shape are among the exploratory actions which delight children. Young children may not predetermine a "model," but will realize the nature and potential of the clay as they work with it. They will develop techniques for its use, but the teacher will suggest ideas to children as they require them. For example, clay will often break at a joint as the model shrinks and dries unless the joint is well sealed, and this fact will be a teaching point.

Children will work freely and become involved in shaping and reshaping the clay again and again. They may make patterns and impressions in clay with sticks, pebbles, shells, bottle caps, etc. Popsickle sticks and smooth dowels (some to be sharpened) are useful tools to provide.

Pottery clay "models" can be fired, if a kiln is available, and glazed afterwards. However, firing is not absolutely necessary because naturally dried clay pieces will harden and remain intact. Children will make all kinds of things with clay, and they may or may not want to keep the results of their work. Clay which will be used again should be rewedged before returning it to the bin.

Other modeling materials such as plasticine and playdough should also be available, but one will not replace the other; each has a property of its own which children will discover.

Junk Modeling and Constructions

The abundance of materials which can be found or obtained at very reasonable cost will provide challenging activities for the children. Packets and boxes will be worked into all kinds of imaginative constructions. Early efforts will be simple and quickly finished; a cylinder with a popsickle stick glued to it will become an airplane, or a box may be described as a boat. Constructions will soon become more detailed and will be vividly described by the children. The teacher may be asked for help, but generally children will work very freely with "junk," and they should be encouraged to develop their own ideas.

Carpentry

Children will enjoy the active and creative nature of woodwork. Just as with other media, shapes can be used, developed, and altered. The action and sound will be more appealing initially to the child than the end product, and only after experiencing the satisfaction of pounding nails into wood will the child be ready to construct--although a construction may emerge as a result of this pounding. The ideas young children will have about what they would like to make may be beyond their skill at this stage. Intervention by the teacher must be through questioning, in order to help the child solve a problem rather than providing the answer immediately.

Children will need to learn how to use tools properly and guidance by the teacher is important; they will then respect the purpose of the tools and use them well. A tool rack offers suitable storage, and tools should be returned to the rack after use. Outlined tool shapes will indicate to the children where the tools hang. Labeling the tools and the shapes on the rack is an additional help.

Glue as well as nails will be used in constructions. Other materials -- cardboard, bottle caps, cans, etc. -- may be used as other shapes are required. The results will be imaginative and lively if the children are encouraged to work things out themselves, and if their endeavors are appreciated. Patterns and procedures must not be constantly imposed upon children, or the goals for carpentry will require so much adult intervention that the creative urge within individual children may be swamped.

Provisions and Storage

All equipment and supplies should be organized and placed on shelves where children can easily find and return the items. Children should be encouraged to experiment with the materials. Since much of it can be "found," supplies should be abundant.

Although all activities under the heading "art" will not necessarily be housed in the same part of the room, the area must be large enough to have several activities taking place together. For example, painting can be done at the easel, on boards, or on a table surface; clay modeling on a table surface, and collage on a wallboard. The floor must be easily cleaned to avoid having to emphasize cleanliness constantly. A carpeted area is not suitable. A double sink unit is ideal in the area. Sponges and clean-up materials for the children to use must be readily available. Smocks or old shirts provide protection for clothing.

A paper storage unit is ideal adjacent to the art area, and it also may serve other areas. Sufficient supplies of various papers must be easily accessible to the children.

The Teacher's Role

The teacher will need to be familiar with the properties of various materials, although working alongside the child will be shared experience, and further discoveries about materials will be made. The provision of suitable materials and adequate space in which the children explore and create will be the direct responsibility of the teacher, who will inspire rather than dictate procedure.

Provision should be made for all or some of the activities listed above. Drawing, painting and clay modeling may be provided initially. Some guidance may be needed, as well as discussion of the materials as they are used. It is important that the children feel free to explore the materials, and for the experiences and results to be through their own action. The activities will enable children to integrate their art work into other areas -- illustrations for the stories and poems they hear, or those they dictate. Modeling may be a means of illustrating a visit to the post office, an addition to drawings, and paintings, etc., or the cover of a book may be decorated with a vegetable print. However, the experience is sufficient in itself for young children, and the integration will be seen through the result -- as an outcome, rather than always as a previously designed purpose.

Display Areas

It is vital that provision is made for displaying children's work that is conducive to viewing, examining, and sharing what has been done. The display area and presentation of all work should be in a bright and attractive manner, and in an area accessible to all.

Examples of Activities:

Painting — A child may want to paint a picture for no other reason than the inner motivation to express thoughts. However, the teacher must take responsibility for providing experiences such as science activities, field trips, etc., and painting will be a natural extension from some of these experiences.

Printing — Using vegetable prints to experiment with patterns would be a beginning activity for a child, but designing and printing a cover for a homemade book or printing wrapping paper for a gift gives purpose to the activity.

Music and Movement

"There's often music in the air in the creative kindergarten." Creative expression comes through music, especially for young children whose movements are uninhibited. They stamp, clap, bend and jump in time to the music. They make up words to a tune, sometimes about their experiences. A trip to the zoo, the sounds of wind and rain, thunder and lightning, or an upcoming birthday easily provide the stimulus for a new dance or song. Children love repetition and nonsense. Emphasis is on the joy music brings to a child, not on perfection.

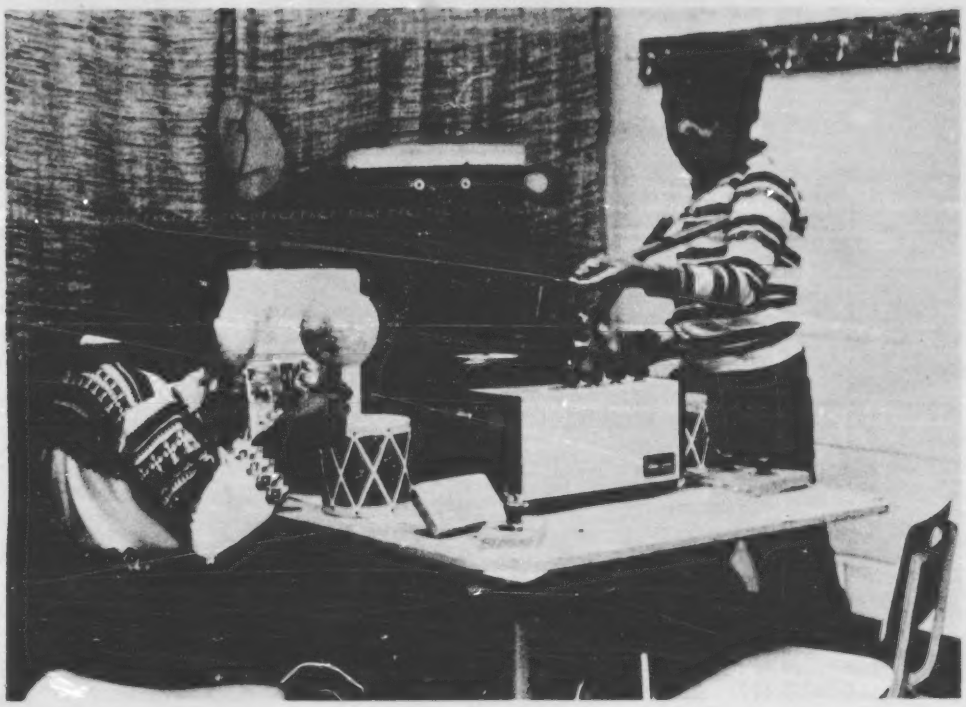
Children need instruments to play, space to move, good music for listening, songs to sing, acting and creating opportunities, and to learn that music and dance are pleasurable experiences.

Singing

Children's first experiments with sounds are made with their voices, and they continue to enjoy making sounds throughout childhood and on into adulthood. Singing is part of a child's nature. Music will become part of so much that happens in the classroom. Children enjoy gathering together to sing and play. Favorite songs and finger plays will be sung again and again. Words to some of these will be displayed on charts.

Making Music

A music resource area is a part of the total classroom and may be used throughout the day by one or more children. This area offers opportunities for the children to explore sounds and vibrations, not only with their voices but also through the use of materials and instruments. A selection of percussion instruments should be available, as well as materials for making sounds and tunes. The basic collection may include a triangle, tambourine, tambour, drum, sound boxes, xylophone, claves, rhythm sticks, tubular bells, and rattles and shakers. A number of these instruments can be made at home or in the school. For instance, beans, rice, etc., in small, closed containers make usable rattles or shakers. Regardless of whether the instruments are commercially secured or handmade, they must be attractively arranged and easily accessible. A pegboard for hanging several of them, as well as a flat surface for tone bells, etc., makes adequate provision. A picture dictionary or chart of the instruments provided encourages language development.



Responding to Music

Recorded music is only a small part of the classroom music opportunities, but selecting records will give children an additional musical experience. Traditional, classical, semi-classical, and popular recordings should be a part of a wide variety of records provided. A phonograph which can be operated by the children is vital, along with several song books and song sheets -- many of which might have been composed by the children. If the teacher cannot write the music for the child who creates, a tape recorder can be provided and someone else can do the notation. Moving or dancing to music can be stimulated by the type of recordings available and by providing other stimulus, such as a drum, tambourine, or even the clapping of hands. Presenting a variety of instruments and varying the rhythm gives the children an opportunity to experiment with different body movements, whether the music is fast or slow, strong or light, high or low, allowing individual creativity in a controlled situation. At times an area larger than the classroom may need to be used in order to allow the children more freedom for movement.

The Teacher's Role

The teacher's role in music is that of a provider and facilitator. She must feel comfortable about what is provided for music, and may in fact learn with the children the satisfaction of creating movement, as well as sounds and music, from patterns and rhythms and voices.

Examples of Children's Activities

Singing — As units of study are pursued, it would be appropriate to sing songs related to the study. For example, when studying hibernation a song about a squirrel could be sung many times and a chart displaying the words could be placed on the bulletin board.

Responding to Music — A record suggesting the movement of waves in the ocean might be played for the children if the class theme is about the sea.

Creative Dramatics

Young children have tremendous capacity to slip in and out of reality. Adults accept this capacity as the children's way of coming to terms with their world. Being able to take on another person's role, and even personality, helps the child understand others.

Play with Objects

The housekeeping center offers one of the earliest opportunities for role playing. The standard props such as baby dolls, kitchen furniture, ironing board, etc., allow children to re-enact situations. A variety of dress-up clothes should be available as well as a variety of materials to create costumes. Large paper bags, boxes, paint, yarn, feathers, aluminum foil, buttons, bows, and other similar materials offer children the opportunity to create their own costumes as the need arises.

As well as "open ended" props, the teacher should provide items for children to play store, post office, doctor's office and such. This approach to dramatic play encompasses many aspects of social living.

The block center offers many opportunities for creative drama. Here too, the addition of props such as small cars and farm animals can add new dimensions to the play.

Puppet Play

Puppets have tremendous value. Since they elude regulation, organization, standardization and conformity, their construction encourages freedom of thought and action. As children become familiar with puppets, they will express thoughts, feelings and actions that hitherto they have kept buried within themselves. They will talk to and through a puppet, expressing

thoughts and ideas they are normally too timid to voice out loud. They can control the environment and the situation through use of puppets. For once, they have power and know more than the puppet.

Essential in working with puppets, as with all activities, is to make this a time of fun and relaxation. It should be a time for listening and watching the children's reaction to the material, to observe the dramatic possibilities of the characters they create, for quickening understanding of the child's ideas, frustrations, delights and language skills.

Pantomime

If given the opportunity, young children will naturally pantomime as part of their play. Teachers are encouraged to make provisions for pantomiming by giving children time in the centers which are conducive to it. However, this activity can also be developed through reading stories to children and doing finger plans and action songs.

SOCIAL STUDIES

Social Studies, in the kindergarten, involves the development of a better understanding of self, of self in relationship with others, and of the immediate environment. The elements of social studies--history, economics, government, geography, and sociology--are integrated as a natural part of the entire learning environment and the child's living/learning experiences within that environment.

Understanding of Self

A child's view of self develops continuously throughout life. It is a cognitive operation carried out in much the same way that children form concepts of the physical world. The child's awareness and evaluation of him/herself depends largely on the way that others talk to him/her, about him/her, and how they behave toward him/her. Based on a great deal of information from many different experiences, the child forms generalizations of him/herself, his/her behavior, and his/her feelings. In a classroom environment which provides the child with a sense of security, acceptance, respect and success, the child comes to understand that he/she is a worthwhile, successful individual. In a classroom environment in which a child's interests are nurtured and expanded, the child soon learns that he/she is a thinking individual. In a classroom which provides many concrete materials and the flexibility for children to choose materials with which to work, the child begins to understand that he/she is a decision maker.

The kindergarten child in egocentric. The self is the center of the child's private and personal universe. Everything observed, interpreted, and comprehended is viewed from this personal vantage point. The clearest point of reference is a very personal one. This self-centeredness shows in their speech: "I have new shoes," "I went to the fair," "I can write my name." All their understanding relates to themselves: "My brother plays ball," "My daddy works in the store."

During this egocentric stage of development it is most important to approach history from the standpoint of the child's personal history. Baby pictures, the telling of humorous events from childhood, pictorial accounts of adventures and trips the child has taken, all begin to develop a sense of history. Geography, too, can be approached from a personal point of view. Maps of children's homes, the school, the doctor's office and other well known places can provide young children with a beginning understanding of geography.

These early beginnings require time, time for children to talk, to observe, to explore. The teacher must plan for this provision of time for children. The teacher must also plan her/his own time so that there is time to listen, time to provide materials and to plan experiences, time to facilitate each child's broader and clearer understanding of self.

Understanding Others

A major advantage to the child on entering school is the social situation in which he/she becomes involved. Meeting many children of a similar age, along with adults outside his/her family, creates a mini-society which prepares the child for the wider world.

Repeated experiences and increasing physical awareness lead the child to see him/herself as an individual who shares characteristics with other individuals. Generalization about him/herself and those significant to him/her leads to an awareness of roles and social groups. The child begins to understand that he/she belongs to a family and that the family is part of a larger group. Participation in groups shows the child that the various elements within them depend upon one another, and that groups themselves interact with each other to form larger groups--schools, communities, cities, states. The nature of this concept development is like other conceptual growth: it progresses to a generalization and common characteristics. It is not something one learns and sets aside or forgets; it is an ongoing, continuous process beginning early in life and developing during the school years.

As children play and interact with each other in the classroom situation, they learn the basic rules of give and take which exists within relationships. As they take part in establishing rules for the room, they experience the rudiments together. Slowly, children learn to respect the feelings and interests of others. Generalizations which relate to the care of the room and materials within the room are also formed. Personal responsibility develops as children are allowed to assume direct duties in the upkeep of their classroom.

Even though most five-year-olds are ready to establish friendships and to work together in small groups, relationships at this age are experimental. Group play is dynamic. Groups form and reform. Solitary play takes place in the midst of group activities. The teacher does not insist that children work consistently in specific grouping patterns, but creates a flexible environment in which groups can form naturally. The everyday drama of the classroom serves as the greatest means of clarification for the young child as he/she explores the entire realm of human relationships.

Understanding the Immediate Environment

The young child is facinated by the adult world which exists in the society which surrounds him/her. It is natural to want to explore the community, learn about the people, their occupations and leisure activities, and become a part of them. The kindergarten child is also endowed with an almost miraculous ability to enter fully into other identities. This innate capacity of "becoming" someone or something else is one of the primary modes of learning which are available to the child.

The kindergarten program serves two functions in assisting the development of understanding in this area. 1) It provides many concrete experiences with the people and the land, and then 2) it offers abundant opportunities for the child to better understand the culture by participating in role-play activities within the classroom itself.

One way of learning about the grown-up world takes place through children's interaction with adults within the school. The cook, who takes children through the school kitchen, demonstrating the use of large pots and pans and other equipment; the custodian who talks with children about custodial work; the school nurse, who allows children to hear their own heart beat or explains the use of eye charts; the bus driver, the milkman, the secretary--all of these people can help the child to better understand the workings of the world.

The community is yet another source of information for children. Trips to the grocery store, the fire station, the farm, the cemetery, the school garage or maintenance office give children experiences which lead to a broader conceptualization of people and their roles in the world.

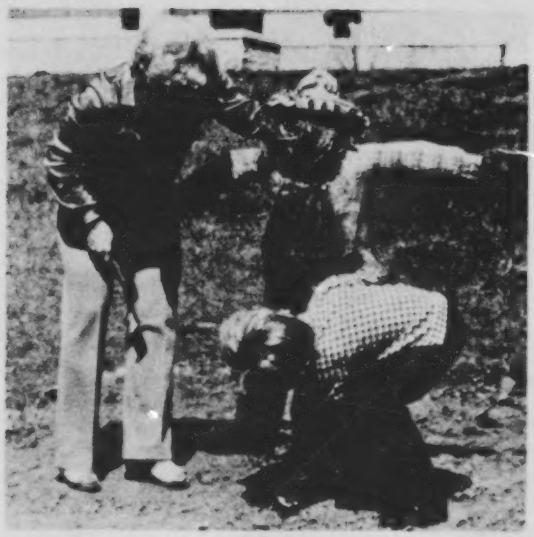
The kindergarten classroom itself is literally alive with opportunities for children to explore various roles which exist within the broader world. In a well-equipped drama area, children become mothers, waitresses, beauticians or doctors. Children live out the roles of truck driver, farmer, astronaut or service station attendant in the block area. The sand table lends itself to restructuring the fields, roadways, bridges, and other familiar physical structures.

The classroom is the child's workshop, and in it the child will learn to live as a member of a community while discovering him/herself as a person. Many of the attitudes developed at this time will remain with the child for a lifetime. The classroom environment reflects the ideals of our democratic society. If the child is able to relate successfully in the classroom, it is likely the child will have the same successful experiences as an adult.

EXAMPLES OF CHILDREN'S ACTIVITIES

Blocks

Block building invites children to work cooperatively. When children are engrossed in constructing a building, they seek help from each other and develop tolerance for the ideas of others. Block play also provides for large and small motor development, conceptual development in the mathematical areas of classification, balance, number, measures, space and shape. Block structures frequently lead to the early dictation of experiences and to pictorial recordings. The addition of a block book made of large pieces of newsprint encourages children to draw pictures of their structures. Labels and simple recordings concerning the structure itself, the actual building of the structure, the inhabitants of the structure, or future plans for expanding the structure can bring print into block book.



The addition of toy cars, trucks, airplanes or community people encourages children to participate in a broader spectrum of role play.

The Class Store

A well equipped class store lends itself not only to the objectives of the social studies curriculum, but also to many other curriculum areas. The addition of paper and pencils for grocery lists, tallies, signs and labels will encourage the use of print in the store.

Classification activities can be facilitated through the organization of the store --fruits on one shelf, vegetables on another. Experience with real money further expand the child's understanding of buying and selling. The class store is also a good place for carrying out bake sales of goods which the children have prepared in the cooking area, or produce which they have grown in the class garden. These experiences in growing, tending, preparing, advertising, and selling open even more opportunities for learning in mathematics, science and language, as well as for learning about the basic economic structure of our society. The land, its people, and its products are all natural elements of the class store, and cultural understandings expand within the context of cooperative play.

PHYSICAL EDUCATION

Children at the kindergarten level need to participate in physical activities that will help them to manage and control their bodies in a wide variety of experiences involving locomotor, non-locomotor and manipulative skills. These movement experiences include large muscle activities such as running, climbing, bending, stretching, throwing, catching and kicking. Opportunities to learn and practice these motor skills are provided in the areas of rhythms, gymnastics and games.

Based upon the characteristic needs of these children, implications for the physical education program include: frequent change of activity and frequent rest periods, affection, praise and encouragement from adults, and opportunities to play and work with other children.

The teacher needs to include daily experiences in physical activities with the children. Developing physical skills and coordination is as important as developing the pre-reading, writing, speaking and listening skills. In fact, these skills are strengthened through these activities. They can be planned for indoors (classroom, halls, gymnasium) or out of doors. Boys and girls need to be out of doors some time every day if the weather permits. Much of the play needs to be spontaneous with very few rules. All games played should be enjoyable and relaxing for the children.

Specific Physical Education Objectives

.To provide a program to develop and maintain physical fitness
.To provide opportunities for free play in a challenging way
.To develop good social habits and attitudes during play
.To learn the appropriate motor skills for this age group
.To learn activities that can be enjoyed during hours away from school
.To develop a positive self-concept
.To acquire cognitive understandings through movement

Specific Education Activities

.Plan periods for boisterous outdoor play whenever possible and also provide large indoor areas for less strenuous play
.Plan for motor games--throwing, bouncing, catching
.Provide imitative games such as "Did you ever see a lassie?" "Looby-Loo"
.Provide competitive games--block relays, musical chairs, tag and duck games
.Provide many dramatic game opportunities
.Develop running, jumping, throwing, catching, kicking, stunt and testing skills, rhythmic skills
.Provide opportunities for children to explore many types of movement with and without equipment

.Practicing good posture--sitting, standing, and walking
.Taking advantage of opportunities to grow in understanding new life
.Discussing the benefits of individually prescribed medicine
.Discussing the dangers of taking medicines or other liquids or substances without parents' approval

INTERDISCIPLINARY APPROACH TO PHYSICAL EDUCATION

Students should be encouraged to explore, experiment and to experience the world about them. Through these means individuals learn to relate to their environment. Because the "real" world is not made up of different segments called math, science and language, educators should make efforts to offer curriculums that provide for an integrated learning experience.

Physical education activity correlated with other areas of the curriculum can be designated not only to enhance the physical development of the child but also the social development such as learning to cooperate and share; the psychological/emotional development such as gaining confidence and self-reliance; and the cognitive development such as problem solving and creativity. The following suggestions are ways to integrate and correlate physical education with other areas of study.

Social Studies

.Discuss the home, school and community as they relate to activities in physical education which can be used for recreational purposes:
  . games which can be used in the yard, with and without equipment.
  . ball games a few people can play.
  . games to use at noontime and recess.
  . games to play at picnics.
  . games to teach someone else.
.Discover the manner and means of play and recreation in various areas of the world.
.Plan for family play.
.Discuss responsibilities and cooperation in the home, school and community:
  . responsibility for playground and physical education equipment in and out of class.
  . sharing in physical education.
  . helping others.
  . fair play and sportsmanship.

.Take a field trip to the farm or zoo to see how animals move. Imitate the movement of animals.
.Visit the circus to observe movement.

Music

.Use songs, records, and rhythmical poems for physical education:
  . creative movement.
  . ball rhythms.
  . singing games. (Hap Palmer record, "Colors," "Noble Duke of York," "Hokey Pokey")

. rope jumping.
. stunts and tumbling performed to music.
. calisthenics and exercises performed to music.

.Create a song or poem from movement experience in physical education.
.Use rhythm instruments such as tambourines, shakers, drums, bells, etc.
.Listen and perform to music various types of rhythms suitable for walking, running, skipping, hopping, sliding, and other locomotor movements.
.Respond with body movements to records:
. slow and fast
. happy and sad
. soft and loud
.Create a dance.
.Use songs and chants to rope jumping and ball bouncing routines.
.Use songs about animals and act out with body.

Language Arts

.Make up "I can -- can you?" sentences:
. I can jump like a _____.
. Can you jump like a _____?
. I can run like a _____.
. Can you run like a _____?
.Use a favorite story and create an active role playing game.
Example: 'The Little Engine that Could"
.Place letters of the alphabet on the floor:
. perform different locomotor skills to specific letters.
. spell your name by moving from one letter to another.
.Use rhymes learned in class for games or other activities.
Example: Jack be Nimble--game
Hickory Dickory Dock--ball bouncing and catching
.Create a poem based on creative movement experience, ball activities, rope jumping, etc.
.Keep a collection of jump rope rhymes and singing games.
.Understand directions like:
"Freeze in your space."
"Sit on your bottoms."
"Stretch as tall as you can."
"Lie flat on the floor."

Art

.Illustrate with stick figures different calisthenics and exercises
.Draw pictures relating to physical education activities:
. my favorite game.
. action pictures.
. activities on indoor or outdoor apparatus.
.Make equipment for physical education instruction and recess:
. hosiery, yarn or paper and tape balls, milk jug scoops, bean bags, coat hanger and hosiery rackets, ribbons or streamers, garden hose hoops, broom handle or rolled newspaper wands and lummi sticks, Pringle container bowling pins, etc.
. rhythm instruments such as tambourines, gourd shakers, drums, bells.
. targets, markers, pinnies, flags, score sheets.

.Plan a bulletin board display for physical education.
.Draw sketches of animals or things children mimic:
  . duck walk.
  . wheelbarrow.

Mathematics

.Strengthen math concepts through physical education: right, left; in front of, behind; next, last; more than, less than; large, small; big, little.
Activity: "Bounce the ball high and low."
"Toss the bean bag in the air and catch it with both hands."
"Hop two steps forward and two steps backwards."
"Line up, tallest child first, shortest child last."
"Measure how far you can jump."
.Use numbers which can be incorporated into self-testing activities and skills:
  . how many times did you bounce the ball?
  . wait until the rope swings five times before you jump it.
  . run in and jump ten times.
  . the rope was jumped six times, how many more times must the rope be jumped to make ten?
.Develop understanding of geometrical concepts: triangle (headstand), diamond (softball), circle (games), parallel (lines stand parallel to each other), vertical (headstand, handstand), rectangles

.Use fractions: quarter, half, full turn.
.Use numbered carpet squares or numbers on the floor; perform different locomotor skills to a specific number.
.Use hop scotch activities.
.Hold up a card with a number on it and have children perform an activity that number of times, for example, bounce a ball, circle their arms, stomp their feet.

Science

.Coordinate knowledge gained from study of science and from field trips with various physical education activities (study of movement of living things):

Flowers in the wind	Activity:	"Play you are walking in the sand."
Animal chase		"Show how to jump over a puddle."
Creative movement		"Pretend you are catching a big fish
		"Pretend you are a frog."

.Use creative movement or dance to portray scientific changes such as seasons, weather, growth.
.Study food as a source of energy.

Health and Safety

.Study about and practice personal health habits in order to be a "physically fit" individual--outdoor play, fresh air, bath or showers, rest, good nutrition, phsycial activity, etc.

All types of materials can be used in designing physical activities for young children; and it won't cost a lot of money.

Balls of various sizes
Bean bags
Ropes of various lengths
Wands
Benches
Tumbling mats
Old tires
Hula hoops
Balance boards
Parachutes

Used as resource: Physical Education Handbook for Early Childhood K-3
N. C. Department of Public Instruction

Physical Education Skills- Curriculum/Administrative Series, Performance K-2
N. C. Department of Public Instruction

Interdisciplinary Approach to Physical Education
Division of Health, Safety and Physical Education

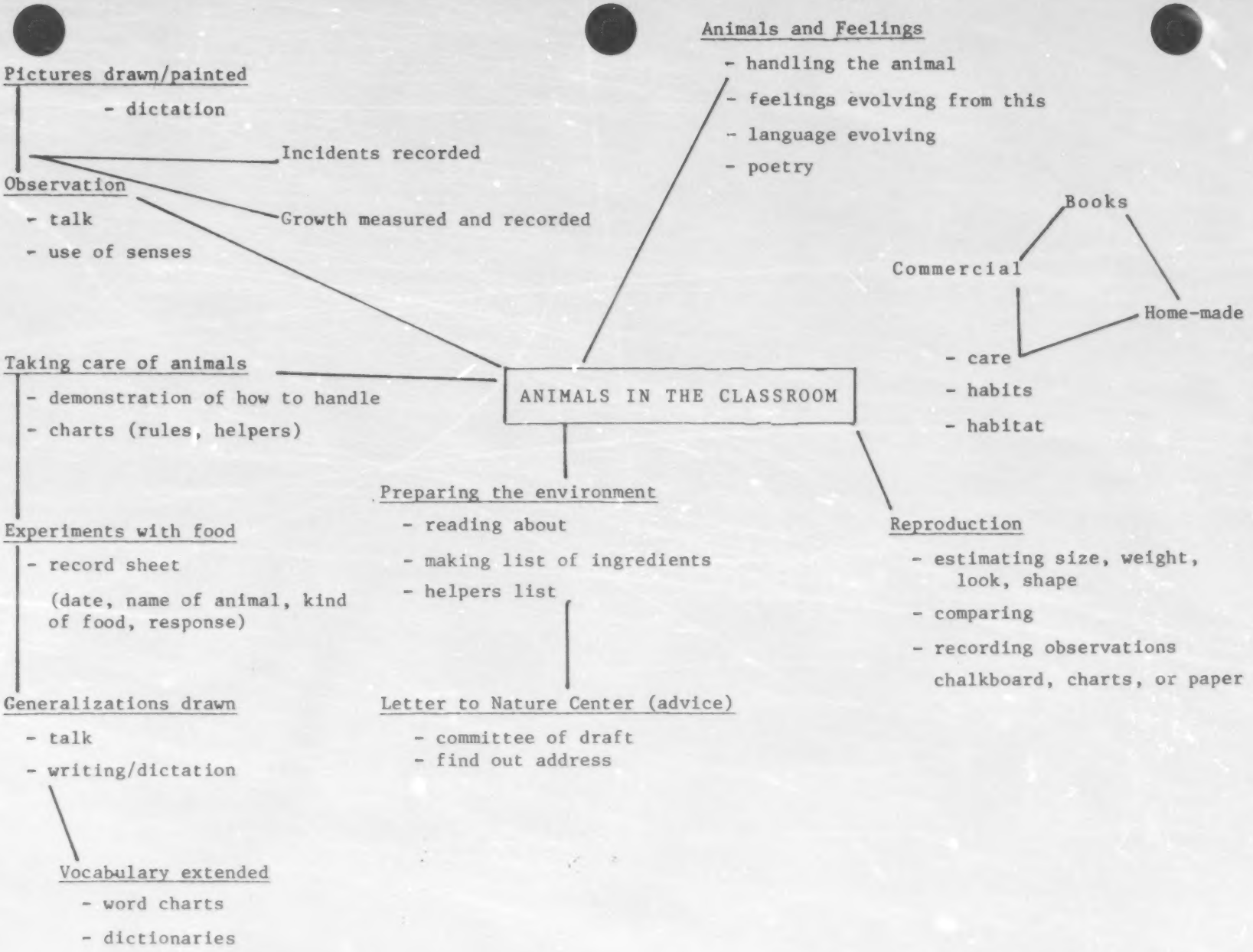
Integrating the Curriculum

Although each major area of the curriculum has been highlighted and discussed separately, this discussion has only been for the purpose of study and planning on the teacher's part. The young child is not concerned with "subjects," nor should he be when he is discovering which objects sink or float or how he may build a bridge with blocks.

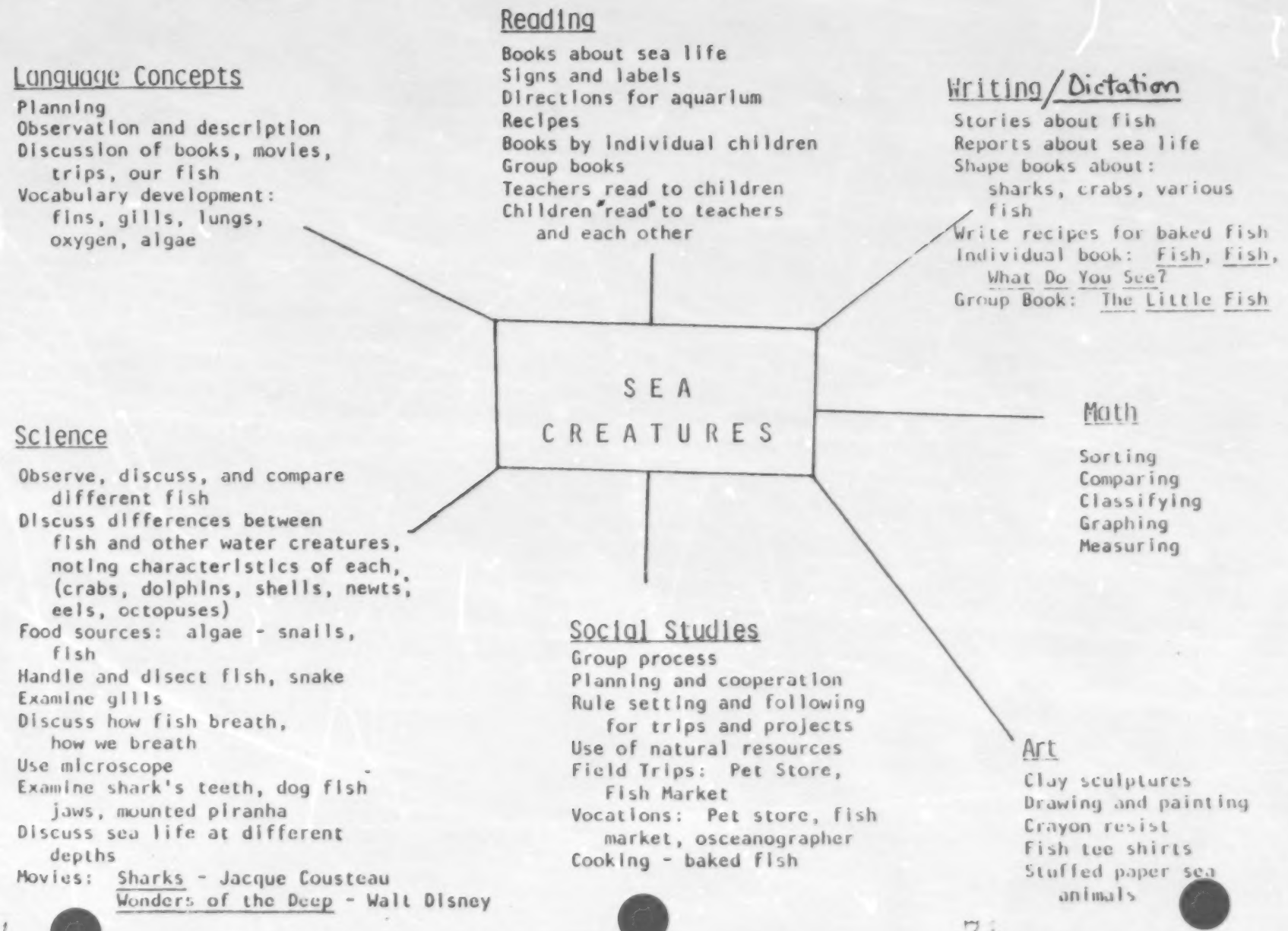
Following the natural flow of investigation across the areas of this curriculum is how we naturally learn. Planning for and supporting this learning in a kindergarten class is no easy task. A teacher needs an understanding of how the whole child develops, as well as a thorough knowledge of all areas of the curriculum. To help each child to truly develop as an individual the teacher needs to focus on an integrated curriculum.

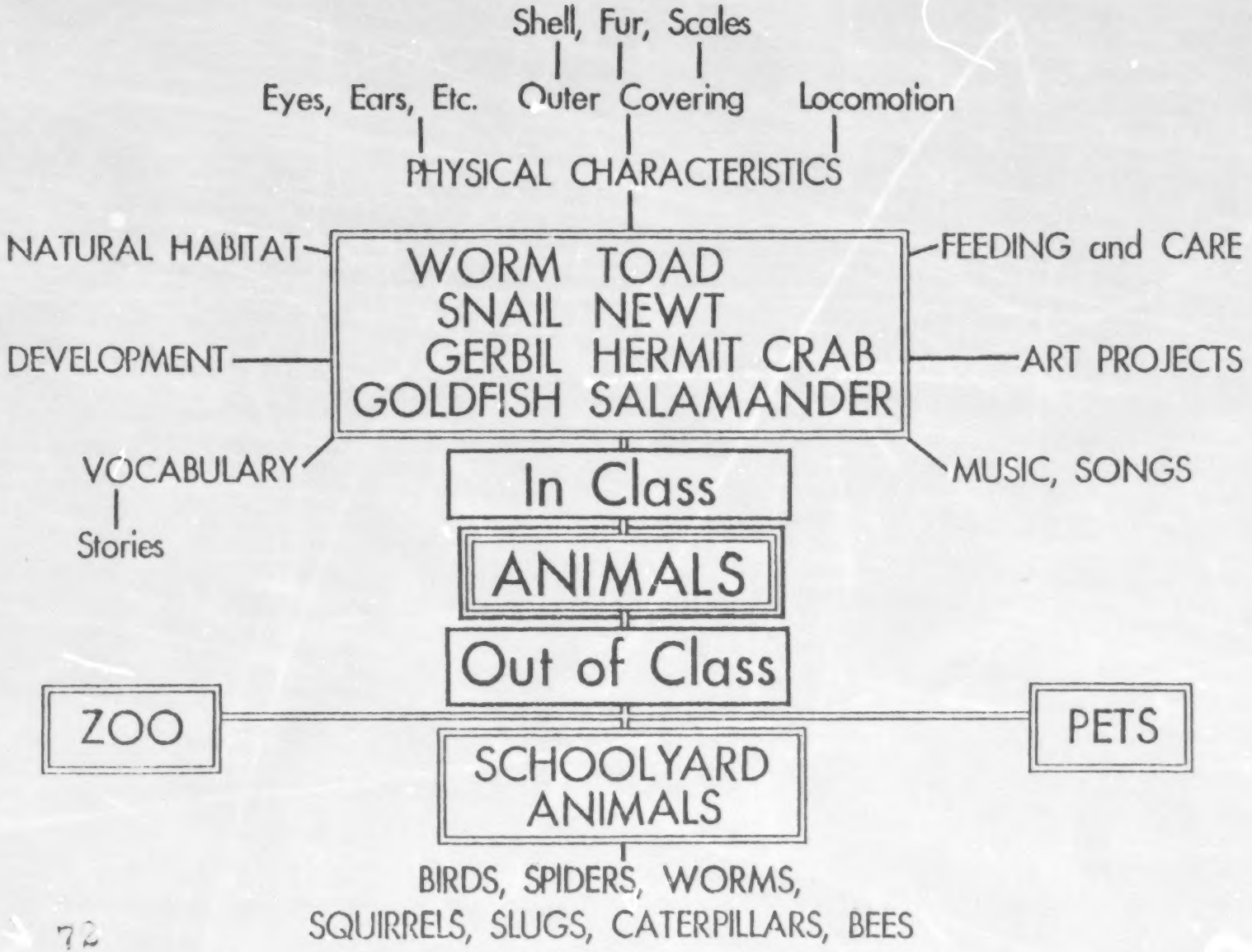
The use of flow charts can often help the teacher plan an integrated curriculum. This chart can also be a useful way of recording what has occurred with the children.

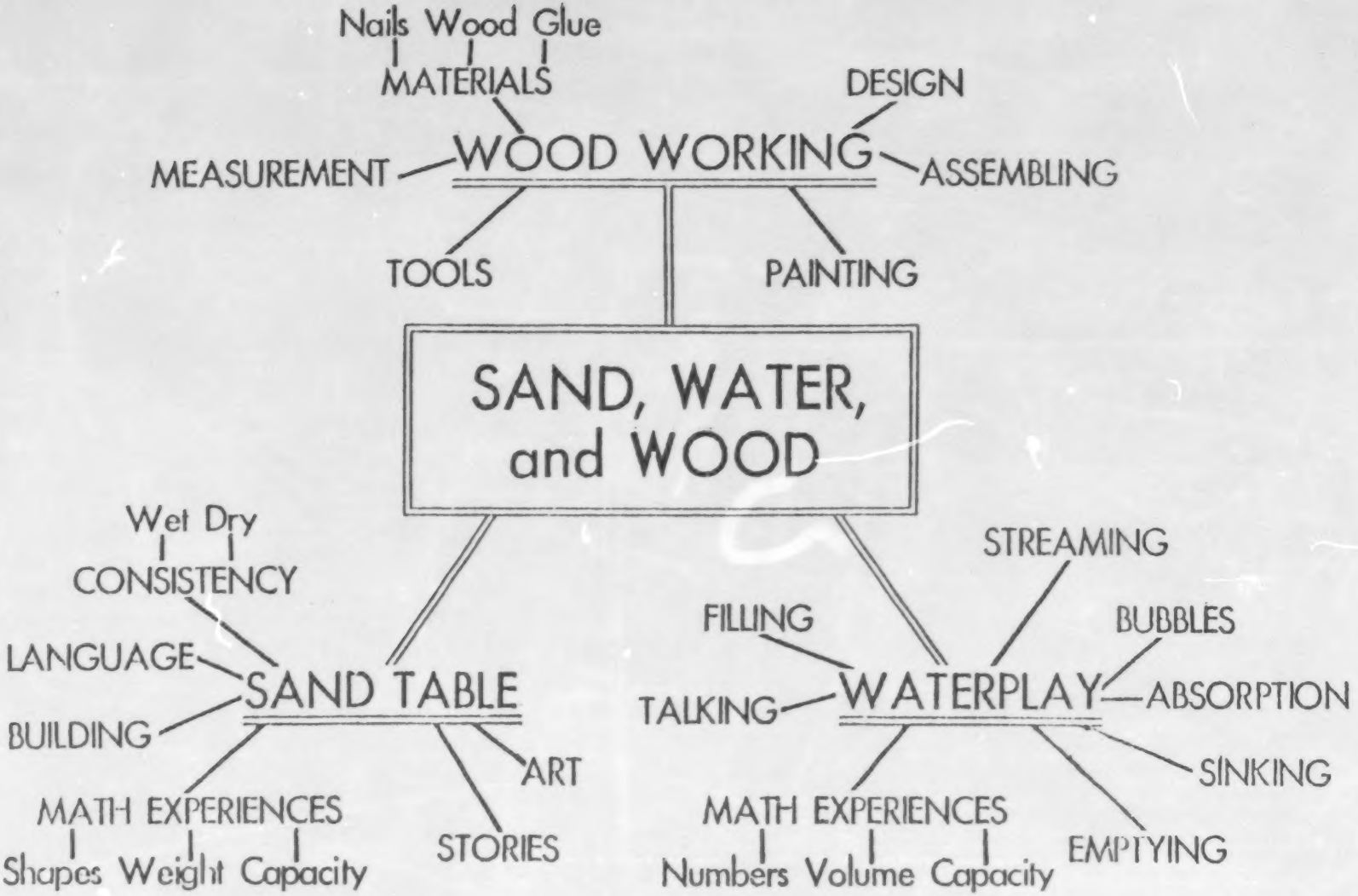
The following charts are offered as examples:


ANIMALS IN THE CLASSROOM
Pictures drawn/painted
- dictation
Incidents recorded
Observation
- talk
- use of senses
Growth measured and recorded
Animals and Feelings
- handling the animal
- feelings evolving from this
- language evolving
- poetry
Books
Commercial
Home-made
- care
- habits
- habitat
Taking care of animals
- demonstration of how to handle
- charts (rules, helpers)
Preparing the environment
- reading about
- making list of ingredients
- helpers list
Reproduction
- estimating size, weight, look, shape
- comparing
- recording observations
chalkboard, charts, or paper
Experiments with food
- record sheet
(date, name of animal, kind of food, response)
Generalizations drawn
- talk
- writing/dictation
Letter to Nature Center (advice)
- committee of draft
- find out address
Vocabulary extended
- word charts
- dictionaries

63


SEA CREATURES
Language Concepts
Planning
Observation and description
Discussion of books, movies, trips, our fish
Vocabulary development: fins, gills, lungs, oxygen, algae
Reading
Books about sea life
Signs and labels
Directions for aquarium
Recipes
Books by individual children
Group books
Teachers read to children
Children "read" to teachers and each other
Writing/Dictation
Stories about fish
Reports about sea life
Shape books about: sharks, crabs, various fish
Write recipes for baked fish
Individual book: Fish, Fish, What Do You See?
Group Book: The Little Fish
Science
Observe, discuss, and compare different fish
Discuss differences between fish and other water creatures, noting characteristics of each, (crabs, dolphins, shells, newts, eels, octopuses)
Food sources: algae - snails, fish
Handle and disect fish, snake
Examine gills
Discuss how fish breath, how we breath
Use microscope
Examine shark's teeth, dog fish jaws, mounted piranha
Discuss sea life at different depths
Movies: Sharks - Jacque Cousteau
Wonders of the Deep - Walt Disney
Social Studies
Group process
Planning and cooperation
Rule setting and following for trips and projects
Use of natural resources
Field Trips: Pet Store, Fish Market
Vocations: Pet store, fish market, osceanographer
Cooking - baked fish
Math
Sorting
Comparing
Classifying
Graphing
Measuring
Art
Clay sculptures
Drawing and painting
Crayon resist
Fish tee shirts
Stuffed paper sea animals


Shell, Fur, Scales
Eyes, Ears, Etc.
Outer Covering
Locomotion
PHYSICAL CHARACTERISTICS
NATURAL HABITAT
FEEDING and CARE
WORM TOAD
SNAIL NEWT
GERBIL HERMIT CRAB
GOLDFISH SALAMANDER
DEVELOPMENT
ART PROJECTS
VOCABULARY
MUSIC, SONGS
Stories
In Class
ANIMALS
Out of Class
ZOO
PETS
SCHOOLYARD ANIMALS
BIRDS, SPIDERS, WORMS,
SQUIRRELS, SLUGS, CATERPILLARS, BEES


Nails Wood Glue
MATERIALS
DESIGN
MEASUREMENT
WOOD WORKING
ASSEMBLING
TOOLS
PAINTING
SAND, WATER, and WOOD
Wet Dry
CONSISTENCY
LANGUAGE
SAND TABLE
BUILDING
ART
MATH EXPERIENCES
STORIES
Shapes Weight Capacity
STREAMING
FILLING
BUBBLES
TALKING
WATERPLAY
ABSORPTION
SINKING
MATH EXPERIENCES
EMPTYING
Numbers Volume Capacity

VII. EVALUATION

Evaluation of the Child

Evaluation is an important part of any good program. The purpose of evaluation is to help the child. The progress made in total development -- emotional, social, intellectual and physical -- must be a daily concern of the teacher in order that appropriate activities can be provided. The means by which the teacher will ascertain the development of each child will be varied but will include the following:

- personal talk with the child
- close observation of the child during activities
- collecting of timely samples of the child's efforts
- anecdotal records of significant events

The total environment inside and outside the classroom will offer opportunity for the teacher to observe and recognize skills being acquired or practiced.

The goals and objectives for each child can only be very broadly determined. A confident knowledge of child development will enable the teacher to respond to the child's interests and to provide appropriately stimulating activities for further learning. Success can be recognized for every child in some measure, and the teachers will note this in their records. To analyze in minute detail the expectancies for a class of children negates the knowledge that each child is unique.

Careful observations of children will reveal details of development which will be additional aides in assessment. These observations may indicate a hearing loss or the need for glasses, and a referral should be made -- for to ignore any sign that special help is needed could result in regression.

Failure cannot be considered if each child is truly seen as an individual. The records kept by the teacher and the use made of them will determine that optimum growth of each child is provided for.

Observing One Child

Observation will include the child's conversations, an awareness of the child's movement within the area, and how the child relates to others.

- What activities did the child choose?
- Did the child choose easily or need guidance?
- Was the child dependent on adults or other children to instigate activity?
- Did the child show imagination?
- How long did the child concentrate on each activity?
- Was the child sociable and confident in contacts with children and adults?
- Did the child carry out requests?

. Did the child talk about his activity to himself, to other children or adults?
. Was the child's vocabulary expressive?
. Did the child share or participate in a group (with one other child or several other children)?
. Did the child at any time show interest in:

Reading - Picture/storybook, homemade books, etc., writing (creative-personal), writing practice, listening to recorded story or story session.

Math - Number relationships, sorting, classification, notation, quantity, size, shape, volume, length, capacity, weight, time, etc.

Art - Paint, clay, constructions, collage, stitchery, etc.

Music - Listening to or making music.

Drama - Incidental home-center or organized role-play.

Sciences- Physical and natural sciences.

Physical Activities - Directed or nondirected.

It is not possible to determine the developmental stage or the developmental pattern of the child being observed during a limited time. Comments can be made on how the child is seen to behave within the situation provided. Further observations and continuity of relationship with the child would allow for a positive comment on the child's development. The teacher should be able to comment on skills seen to be acquired and/or practiced within the integration of "subject areas" rather than only in specific subject areas. Example: A young child perfectly matching two lines of blocks as part of a construction in the block area will probably be seen to practice an acquired awareness of the one-to-one number concept.

Observed skills will be seen within an activity and may pertain to the child's physical and intellectual development as well as his social and emotional development. Example: The child in the block area matching two lines of blocks will provide the observer with information about the child's manipulative ability, in addition to the development of verbal and non-verbal reasoning and thinking. The observed skills may also show development in the areas of language, math, sciences, art, music, drama, etc., and will probably be within the social setting of the classroom.

Examples of Record Keeping

1. The following comments are taken from a teacher's notebook in which children's records are kept. At various times during the year, the development of each child is noted and extra comments are included when appropriate. During parent conferences this is useful reference material as a basis for discussion.

Jane Smith (6 years)

October 21

Jane has settled into school very well. She obviously enjoys exploring the activities and has been pleased with her work. She has particularly enjoyed various art activities -- she paints very freely and easily talks about her pictures. This week she has concentrated on clay modeling and has become very engrossed in her work. She talks a great deal as she works and expresses her thoughts and feelings very easily. She works socially, enjoys the company of others -- there is a tendency for her to dominate a group. She decides on the "play" in the home center, she makes the decisions about sand and water play. She has a happy way of leading her companions!

Jane has just completed her book about "Babies," which started as an account of her baby sister. She dictates her writing and can read it all. She is so pleased with it that today she began her own dictionary. She is very aware of number groups and patterns and comments well about her math activities. She has worked with David, using hand spans and footprints as units of measure. The cuisenaire rods fascinate her, and she has become adept at the "guess the color" game.

She "reads" many of the books in the class library. Her favorite at the moment is "Toad and Frog Together," in which she is able to recognize some words. Jane is writing and drawing well and records in many different ways. Her letters are well-formed and clear.

December 4

Jane's baby sister was taken to the hospital last night and this has disturbed her greatly. Evidently it is not serious, but Jane has been aggressive today and has not accomplished her usual activities.

January 30

Suddenly Jane has discovered she doesn't have to dictate her writing. She started a storybook this morning early and worked on it for most of the session before lunch. This activity is encouraging Donna and Emma to do the same.

2. Another teacher keeps a card file box, filling out a card for each child and adding comments as appropriate. The following are examples from her file:

Christopher Burnes Date of Birth: 4-4-64
Tel. # 489-6262 Address: 4 Valley Road

26 September 5 years 5 mos.

Physical Dev.: Wonder if Chris needs glasses?

Indicated by holding books close to face. Head very near to paper. Does not catch ball yet.

Social-Emotional: Well adjusted to class routine. Happy and works well with others.

Reading: Just making a start at word recognition. Using dictionary. Wants to write and dictates for copying. Likes to write own "newsbooks." (over)

Math: Sand, blocks, water are very much a part of Christopher's math. He is in fact spending time with many activities. Easily recognized number groups to 10.

Art: Does not like "messy" paint or clay. Enjoys tidy art activities. Prefers carpentry just now, being creative with this.

By April, four more cards were added for Christopher, and the following card was written:

April 30 6 years

Reading: Is fascinated with books and loves to guess what signs and labels say. Has memorized several favorite books and is trying to match voice to print.
Writing: Sees the purpose of writing and enjoys writing notes and making greeting cards for family. Uses homemade dictionary well.
Math: Has helped David with shop preparation and will now work with this for Math. This will be introduced to a small group. Has worked with weighing. Exrerimenting and recording in picture form. Worke1 with Mark at "greater than, less than." (over)

Art: Has practiced printing, using vegetables and paint. Plans to make a book cover for storybook.
Science: Planted some beans and will write about progress so far. Will make this a contribution to the "seeds" book.
Sewing: Making a puppet.
Music: Has developed some good percussion sequences.

3. The comments which follow are based on the teacher's evaluation of two children at the end of their year in kindergarten. Each reflects the individual child and will be referenced as John and Michael. Each has obviously developed a great deal during the year.

John Trent (5 yrs. 11 mos.)

June
John is creating an impression now of a well settled and happy class member. His impetuosity and belligerence has, at present, disappeared. He is accepting and giving help and is less noisy. His math experiences are basic and give him a firm understanding in a simple addition and subtraction--counting on and back from a given number--understands use of balance scales --makes sets of numbers. He is writing his own storybook. Using his dictionary very well. He is reading simple books from the library, the "Corkey Series," and "Little Bear," in particular. He is sensitive in his use of paint and color and shows a mature awareness of texture. He expresses a great deal of himself in his paintings and clay modeling. He is adventurous in physical education, has good movement and is light in landings. He has a much wider circle of friends now. These include David and Andrew. His attendance has been regular except for two weeks in May when the family went north to stay with grandma.

Michael Owen (6 yrs.)

June
Michael will soon be completing his first year at school. During the first term he attended school for mornings only, and this was obviously the length of time he could comfortably spend away from his mother.

After Christmas, he came to school full-time and stayed for school lunch. He was much more aware of the variety of activities he could explore, and his concentration has improved slightly--probably because he was more at ease in the classroom situation. He played for short sessions with sand and water--which he especially loved, various manipulative activities, bead threading, fitting shapes, matching colors, and paint. He now enjoys playing in the home corner; also is contented to look at familiar books for a short period of time--especially the Lady Bird Book of "Time." At first he made one-word statements in a monotone, but he now chatters to himself and to others with a limited vocabulary and with more variety of tone.

He offers information regarding happenings at home and remembers the titles of songs and rhymes, some of which he constantly requests. He can recognize his name in print but makes no attempt to copy it. He does scribble with paint and chalk and plays well with clay.

Socially, Michael is very much better adjusted to being one of a "large family." (The class is grouped vertically.) Physically, he is still immature, noticeably in his lack of manipulative skills, generally attributed to a five-to-six-year-old. He will climb and jump and does sometimes attempt to copy the more able children, especially during a physical education lesson.

Michael has attended school regularly. He has just had chicken pox, but otherwise seems to overcome coughs and colds very easily.

Although his academic progress may be considered slow, he has obviously achieved a great deal during this first school year by his own determination.

Class Record

Children are their own resource for learning. As a facilitator, the teacher will recognize that many very positive learning situations will arise from a child's or a group's interest--the injured sparrow that Daniel brought to school, the preparation of a piece of ground for a new school building, a new book, a shell, the baby gerbils--so many happenings to inspire research, painting, drawing, modeling, science, math, etc.

The manner in which the week evolves should be recorded. Keeping a diary about the week to encounter the unexpected, to describe activities, to note the stories, poems, songs, and games shared with the class provides an honest record of teacher and child participation. It becomes a resource for further planning, for too often, plans are totally out of context and appear in isolation to the needs of the children. The teacher may often be the instigator of an unexpected interest. The teacher may introduce a new book of poems or bring some stitchery to show the children, but will respond to the children's interests, expanding the possibilities for furthering their development as individuals.

A wealth of observation and reference materials will be available to the teacher who keeps a weekly record.

Reporting to Parents

Although these observations and written records are primarily to help further the child's development, they also can be used as a reference for parent conferences and as a basis for the written report which may be given to parents at the conference. This contact with the parents is very important if the school and home are truly sharing the responsibility for the child. Conferences may be informal and occur whenever a parent is able to come to school, or they may be arranged, with parents invited to come at a mutually convenient time. The extra effort of seeing parents at least three times during the year

really does benefit the child. No longer does the parent visit school because something is wrong; no longer is one child compared with another--the parents and teacher discuss the child concerned, and many positive aspects of the child's development are discussed. Keeping samples of children's work periodically (art, creative writing, math, etc.) also will help to explain the child's day in school. Each sample should be dated, with a comment attached by the teacher. Over a period of a year this material will prove to be another means of representing the child's progress in school.

Written reports about a child's development over a period of time should sufficiently indicate the total development of the child. In conjunction with parent conferences, an informal report in the form of a letter is much more realistic than any checklist or grading system. Any change in the manner of reporting a child's progress should be discussed with the parents if the child is to benefit.

. Communicating With Parents in Other Ways

Other ways of working with parents are through home visits, school visits, telephone conversations, casual visits, study groups, planned parent meetings, parent advisory councils, newsletters, parents serving as volunteer helpers, and providing a special room for parents where they may look over materials and hold meetings.

By keeping parents informed and inviting them to be involved, teachers are more likely to know each child well and thereby do what is best for <u>each</u> one.

Evaluating the Kindergarten Program

The school environment has a dramatic effect on the quality of life and learning which is available to every human being within a school. Dr. Anne Taylor, Professor for Environmental Education at the University of New Mexico, has stated: "Instead of schools acting as passive receptacles into which objectives and materials are placed, the environment is an active learning facilitator directly contributing to the learning of content materials." In the simplest of terms, the school environment can and should act as a three-dimensional form of the school system's curriculum. The classrooms, hall spaces, outdoor areas, cafeterias, principals' offices, and media center should all reflect and support the total curriculum.

The following checklist was designed as an instrument to assist the principal and faculty in evaluating the total environment within their school and within their kindergarten classrooms. The checklists are in no way intended to be static or all-inclusive. The principal and staff should alter the checklist to meet the goals and objectives of their school.

A.

THE CLASSROOM ENVIRONMENT CHECKLIST AND PLANNING GUIDE

I. The Classroom Environment (Its organization and utilization)	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
A. Organized for free movement				
B. Organized for choice				
C. Organized for interaction				
D. Organized for open-ended, and realistic problem solving				
E. Availability of manipulative, concrete materials				
F. Evidence of choices being made by children				
G. Evidence of purposeful movement				
H. Evidence of self direction				
I. Evidence of child involvement in solving social problems				
J. Evidence of child involvement in solving problems of a cognitive nature				
K. Evidence of concrete materials being used by children				
L. Evidence of a sense of trust and respect				
M. Evidence of print in realistic situation within the total environment				
N. Evidence of experiences being extended				
O. Evidence of children recording personal activities and experiences				
P. Evidence of childrens' work being attractively displayed				
Q. Evidence of realistic limits and expectations				
R. Evidence of a record keeping procedure				
S. Evidence of the integration of skills in realistic situations				
T. Evidence of the integration of content				
U. Evidence of varied levels of questioning (literal, interpretive, inferential, application				
V. Evidence of more childrens' questions than teachers questions				
W. Evidence of curriculum evolving from children				
X. Evidence of child-level material and equipment				

B. THE HALLWAY ENVIRONMENT C[illegible]LIST AND PLANNING GUIDE

	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
1. Evidence of childrens' work attractively displayed				
2. Evidence of reflection of the cultural environment of the school location				
3. Evidence of the physical and biological environment of the school location (plant life, minerals, maps, mountain ranges, etc.)				
4. Evidence of the support of various curriculum areas through wall murals, learning centers, displays: a. Math				
b. Science				
c. Art				
d. Social Studies				
e. Music				
f. Language/Reading				
5. Evidence of children actually using the hallways for learning purposes				
6. Evidence of attention to the aesthetic of the hallways				
7. Evidence of bulletin boards, projects, displays which involve students and staff within the entire school (such as a calendar of birthdays, problem solving projects)				

C. THE OUTDOOR ENVIRONMENT CHECKLIST AND PLANNING GUIDE

	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
1. Evidence of a humanistic rather than an institutional appearance				
2. Evidence of varying levels in the terrain				
3. Evidence of creative playground equipment				
4. Evidence of curriculum focus points in: a. Math				
b. Science				
c. Art				
d. Language (Drama)				
e. Movement and Dance				
5. Evidence of sand and water play				
6. Evidence of equipment to challenge a child's psychomotor development				
7. Evidence of childrens' assistance in playground design				
8. Evidence of community involvement in playground development				

D. THE CAFETERIA ENVIRONMENT CHECKLIST AND PLANNING GUIDE

	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
1. Evidence of a "home-like" rather than an institutional appearance				
2. Evidence of childrens' work attractively displayed				
3. Evidence of responsibility being given to children in: a. payment for lunches				
b. handling trays				
c. cleaning up				
4. Evidence of curriculum reflection in: a. math (such as money, time, classification charts or graphs concerning food served)				
b. science (such as before and after cooking charts or displays on foods served)				
c. art (murals, table arrangements, decorations, etc.)				
d. language/reading (menus posted, printed labels at serving line, charts, graphs, recipes, etc.				
e. music (background music of various types played during lunch)				

E. THE PRINCIPAL'S OFFICE CHECKLIST AND PLANNING GUIDE

	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
1. Evidence of childrens' work attractively displayed				
2. Evidence of at least one changing learning center or display				
3. Evidence of a comfortable place to talk with children and teachers				
4. Evidence of children using the office for learning experiences				

F. THE MEDIA CENTER CHECKLIST AND PLANNING GUIDE

	Satis-factory	Needs Improve-ment	Action Plan	Date tobe Accom-plished
1. Evidence of an open schedule				
2. Evidence of childrens' work attractively displayed				
3. Evidence of child-made books available				
4. Evidence of a reflection of the cultural, physical, and biological environment of the area				
5. Evidence of learning centers coordinated with classroom activities				
6. Evidence of children using equipment				
7. Evidence of a "cozy place" where children can come to read				
8. Evidence of a humanistic rather than institutional appearance				
9. Evidence of children using the media center throughout the entire school day				

II. Materials Within the Environment	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
A. Communications				
1. Area carpet				
2. Armchair or sofa				
3. Pillows				
4. Low mobile unit for books				
5. Record player and headphones				
6. Records				
7. Tape recorder				
8. Tapes				
9. Typewriter				
10. Printing set				
11. Bookmaking materials				
12. Books of all kinds				
13. Paper, pencils, crayons, chalk, magic markers				
B. Math				
1. Storage unit for manipulatives				
2. Balance scales				
3. Weights				
4. Assorted materials for weighing				
5. Domestic scales				
6. Spring balance				
7. Bathroom scales				
8. Objects for counting				
9. Measuring sticks, rulers, tape measure, rope, yarn, string, ribbons				
10. Timers				
11. Clock - real and play				
12. Measuring utensils (cups, jugs, spoons)				
13. Funnels, tubes, cans, sieves, buckets				
14. Attribute blocks				
15. Colored cubes				
16. Chips, dice				
17. Pattern pieces				
18. Dominoes				
19. Woodworking table				
20. Soft wood scrapes				
21. Real tools				
22. Nails, screws				
23. Burlap, large eyed needles, yarn				
24. Hot plate				
25. Electric oven				
26. Cooking utensils				
Cooking supplies				
Sand/Water table				

	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
C. Science				
1. Storage unit				
2. Display table				
3. Aquarium				
4. Terrarium				
5. Plants, pots, seeds				
6. Large and small magnifying glasses				
7. Mirrors				
8. Prisms				
9. Assorted magnets				
10. Assorted materials for use with magnets				
11. Old clocks, pulleys, screwdrivers				
12. Compass				
13. Materials for observation, exploration and experimentation				
14. Garden plot				
15. Garden tools, seeds, and plants				
D. Creative Expression				
1. Easels				
2. Tables				
3. Large air-tight bin for clay				
4. Clay				
5. Storage unit				
6. Paints				
7. Printing materials				
8. Collage materials				
9. Paint brushes				
10. Collections of magazines, newspapers, wallpaper books, junk material				
11. Musical instruments				
12. Materials for constructing instruments				
13. Recordings and tapes				
E. Social Studies				
1. Doll beds and dolls				
2. Play furniture				
3. Rack for dress-up clothes				
4. Dress-up clothes				
5. Long mirror				
6. Old telephone				
7. Dishes, pots, pans				
8. Hair curlers, brushes, combs, ribbons, hand mirrors				

	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
E. Social Studies (cont.)				
9. Collection of empty containers for store				
10. Real money				
11. Storage unit for blocks				
12. Blocks				
13. Construction sets				
14. Small cars, trains, trucks, airplanes				
15. Set of community people				
16. Puppets				
17. Puppet stage				
F. Physical Education and Movement				
1. Tires				
2. Bean bags				
3. Hoops				
4. Balls				
5. Ropes				
6. Climbing rope apparatus				
7. Other climbing structures				
8. Swinging ropes				
9. Mats				
10. Multi-level play surface (some hills & valleys)				
11. Rhythm sticks				
III. Experiences Within the Environment which Facilitate the Development of Concepts				
A. Language				
B. Reading				
C. Listening				
D. Writing				
E. Speaking				
F. Sharing				
G. Working in a group (self in relation to others)				
H. Classification				
I. Patterning				
J. Number				
K. Seriation				
L. Size				

III. Experiences Within the Environment which Facilitate the Development of Concepts (cont.)	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
M. Shape				
N. Space and Area				
O. Time				
P. Money				
Q. Weight				
R. Linear Measures				
S. Balance				
T. Color				
U. Pitch				
V. Volume				
W. Speed				
X. Rhythm				
Y. Melody				
Z. Line				
AA. Textures				
BB. Dimensions				
CC. Body				
DD. Self in relation to environment				
IV. Experiences Within the Environment which Facilitate the Development of Skills				
A. Cutting				
B. Pasting				
C. Tearing				
D. Placing				
E. Pouring				
F. Hopping				
G. Skipping				
H. Jumping				

IV. Experiences Within the Environment which Facilitate the Development of Skills (cont.)	Satis-factory	Needs Improve-ment	Action Plan	Date to be Accom-plished
I. Balancing				
J. Throwing				
K. Catching				
L. Expressing				
M. Interpreting				
N. Inferring				
O. Hypothesizing				
P. Contrasting				
Q. Identifying				
1. Size				
2. Shape				
3. Number				
4. Classifications				
5. Money				
6. Time				
7. Name				
8. Objects				
9. Sound				
10. Smell				
11. Taste				
12. Color				
R. Observing				
S. Predicting				
T. Recording				
U. Experimenting				
V. Left/Right movement				
W. Concrete Graphing				
X. Estimating				
Y. Questioning				
Z. [illegible]ng/Respecting				

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